

Figure 1B

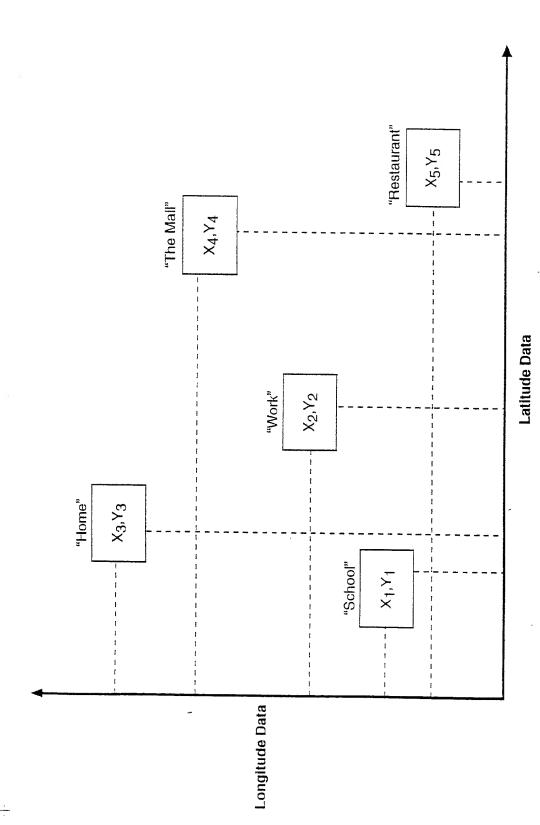
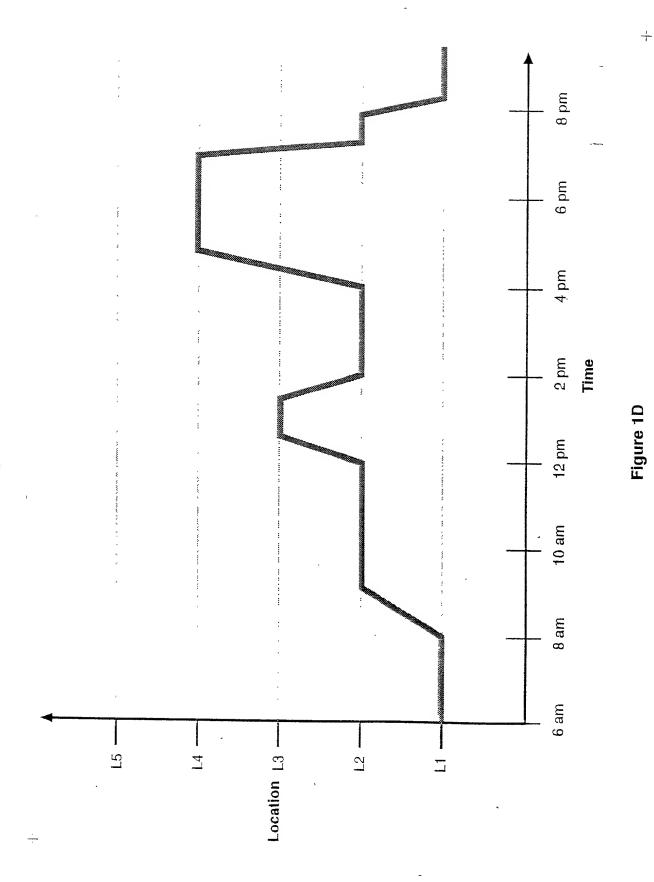
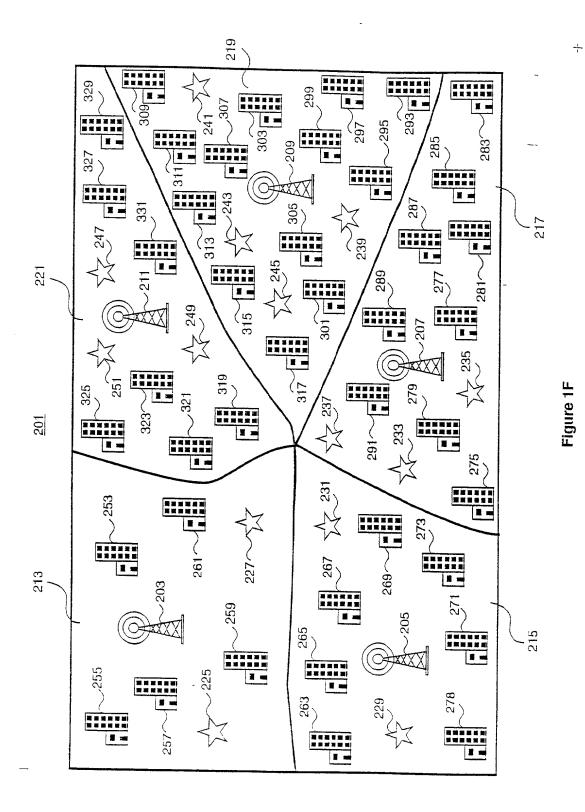


Figure 1C



•		157	159	161
7 131	Biographic Data	Data	Confidence	Correlation
163	Name	Sue	High	Yes
165~	Gendei	Female	High	Yes
~ 291	Aye ,	13	Medium	Yes
1697	Ethnic Background	Chinese-American	Medium	No
153-7	Demographic Data			
171	Culture	American	Low	No
173~	Педіоп	East Coast	High	Yes
175	Likely Family Income	High	Low	No
155	Preferences Data			
. ~ 121	Action Movies	High Interest	High	oN,
~621	Hip-Hop Music	Low Interest	Low	No
	Clothing from The GAP	High Interest	High	Yes

Figure 1E



Tower No.	Region	Adjoining Regions	Favorite Places	Network Affiliates
203	213	221	225 Riding Stables	253 Garne Arcade
		· 215	227 Water Park	255 Video Store
		,		257 Taco Stand
				259 Book Store
				261 Riding Supply Store
			:	

Figure 1G (1 of 5)

Tower No.	Region	Adjoining Regions	Favorite Places	Network Affiliates
205	. 215	213	229 Aunt Jane's House	263 24-Hour Gym
		217	231 Linear Park	265 Ice Skating Rink
		. 221	233 Pottery Supply Store	267 Sporting Goods Superstore
		, ; ,		269 Promdress Shop
	,			271 Belgian Chocolate Store
	***************************************	3 · · · · · · · · · · · · · · · · · · ·		273 Pet Store
		:	:	278 Model Train Store

Figure 1G (2 of 5)

Tower No.	Region	Adjoining Regions	Favorite Places	Network Affiliates
207	217	219	235 Candy's House	275 Corn Maze
:		221	237 Resale Boutique	277 Aquarium
		215		279 Museum
: : :				281 I-MAX Theatre
				283 Movie Theatre
				285 Laser Tag Facility
:				287 Pizza Place
				289 Zoo
				291 Public Library

Tower No.	Region	Adjoining Regions	Favorite Places	Network Affiliates
209	219	217	239 Home	293 Mall #1
		221	241 School	295 Mall #2
			243 Work	297 Chinese Food
			245 Suzy's House	299 K-Mart
			,	301 Target
			, ,	303 Record Store
	:	:		305 Batting Cages
	:	:	To the second se	307 Golf Driving Range
				309 Computer Superstore
			:	311 Boy's Club
				313 Church #1
				315 Restaurant #14
				317 Bicycle Shop

Figure 1G (4 of 5)

Tower No.	Region	Adjoining Regions	Favorite Places	Network ⁻ Affiliates
211	. 221	219	247 Uncle Clay's House	319 Metro Stop
	- :	217	249 The Gap	321 Starbucks
		215	251 Grand Mother's House	323 Bowling Alley
	:	: ! 213		325 Antique Mall
	:	· · · · · · · · · · · · · · · · · · ·	; , ,	327 Tennis Facility
	:			329 Car Stereo Superstore
	:	:	:	
				,

Figure 1G (5 of 5)

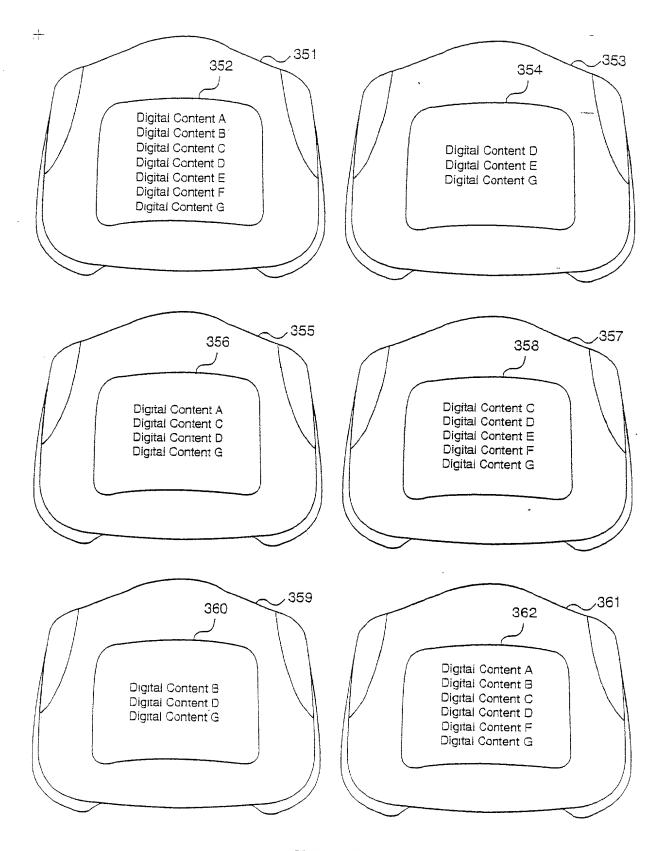
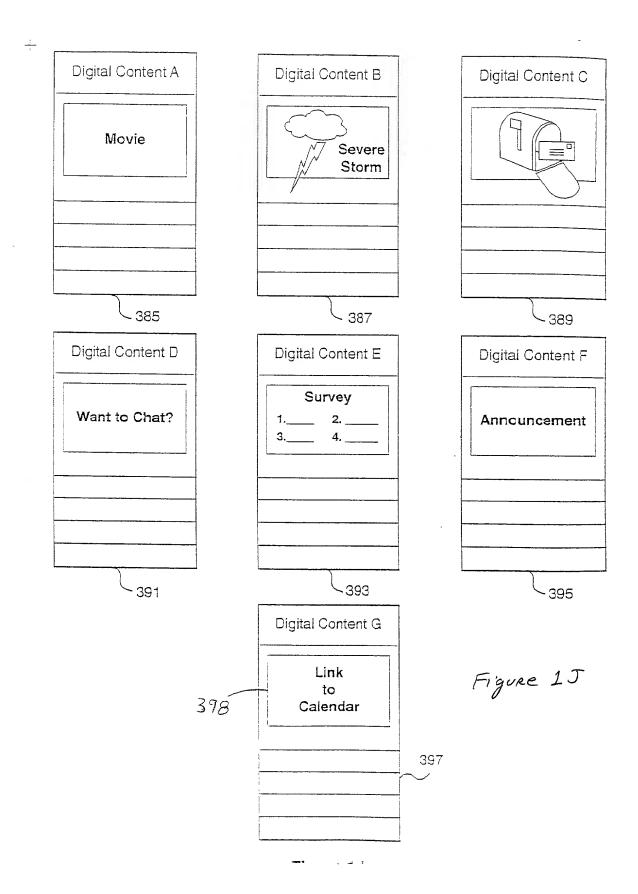


Figure 1H

			lly nr					≦ .	
	383	Period	Incrementally Larger with Location	One Time Only	7 Days	3 Hours	25 Days	Incrementally Larger for 7 Days	User Initiated for 2 Days
	381	Preferred Time	After School	Immediate	ASAP	ASAP	Between 12/1 and 12/25	Between 3.00 pm and 10:00 pm	
	379	Preferred Location	LATLONG1	Various Changing	N/A	N/A	LATLONG2	N/A ·	N/A
	377	Energy Earned for Playing (Units)	5	0	0	0	20	0	. 0
	3 375	Energy Required to Play (Units)	0	0	2	5	0	+	ю
963	J 373	Subject	×, ×	Weather			L, M	Sporting Event	
	371	Туре	Advertisement	Warning	Email Message	Request for Chat	Survey	Announcement	Schedule
	369	Source	Merchant #12	Government Entity	Friend #1	Acquaintance #3	Merchant #2	School	Soccer Team
	5 367	Playable Digital Content	Movie	Text and Alarm	Graphical Icon	Техt Меѕѕаде	Executable Spreadsheet	Text Message	Calendar File
	365	Digital Content ID	Digital Content A	Digital Content B	Digital Content C	Digital Content D	Digital Content E	Digital Content F	Digital Content G
		ပ							U

Figure 11



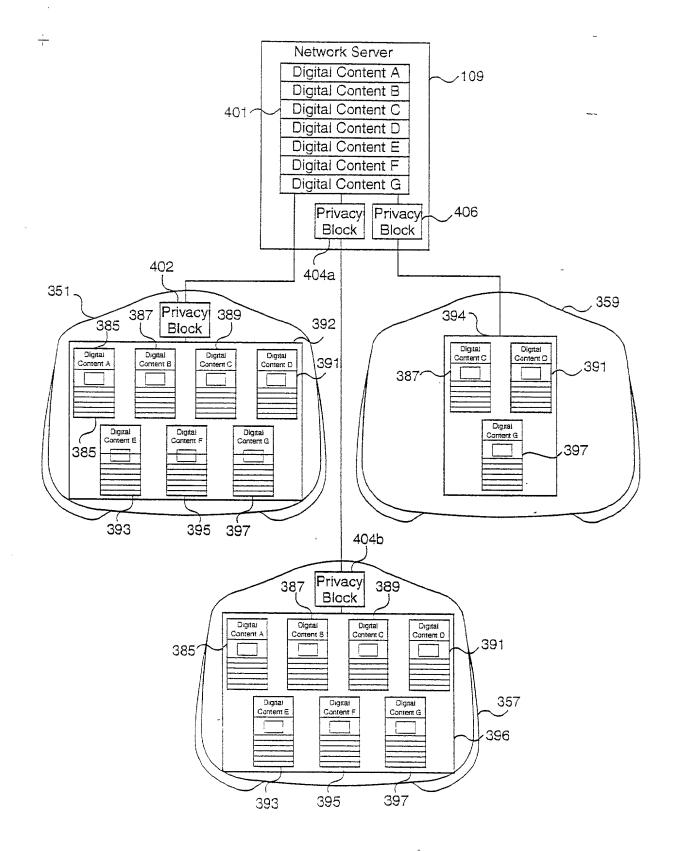


Figure 1K

			407							-		,	
				3	Contextual User Profile	ser Profile							
		Stal	tic Component	S				Dynamic	Data C	Dynamic Data Components			
409		423	423b 4	423c	425a 42	425b	425c	425d	425e	425f	425g ⁴	425h	
		ر_	ر		حر	Hard	ر	ر		Soft		<u>لر</u>	
	User/ Appliance		Biographic Demographic Cultural	Cultural	Latitude Longitude	Time	Date /	Available Energy	Food Pref.	Entertainment Preferences	Relationship Preferences	Privacy Block	
411	351	B1	DM3	D D	LATLONG1 4:00 pm		12/5	130	ī.	<u>П</u>	R3	ā	
413	353	B3	DM2	C2	LATLONG2 4:30 pm		12/5	43	F2	E3	R2	P2	
415	355		DM1	83	LATLONG3 5:00 pm		12/5	62	F3	E2	Æ	P3	
417	357	B1	DM2	10	LATLONG4 4:00 pm		12/5	227	F3	Б	R1	P4	
419	359	B3	рмз	22	LATLONG5 4:30 pm		12/5	39	F2	E3	R2	P5	
421	361	B1	рмз	£2	LATLONG6	5:00 pm	12/5	200	Ţ	E2	R3	P6	
			1 423			427a	æ			4,	427þ	-	
					Figure 1L	re 1L			425			· ·	

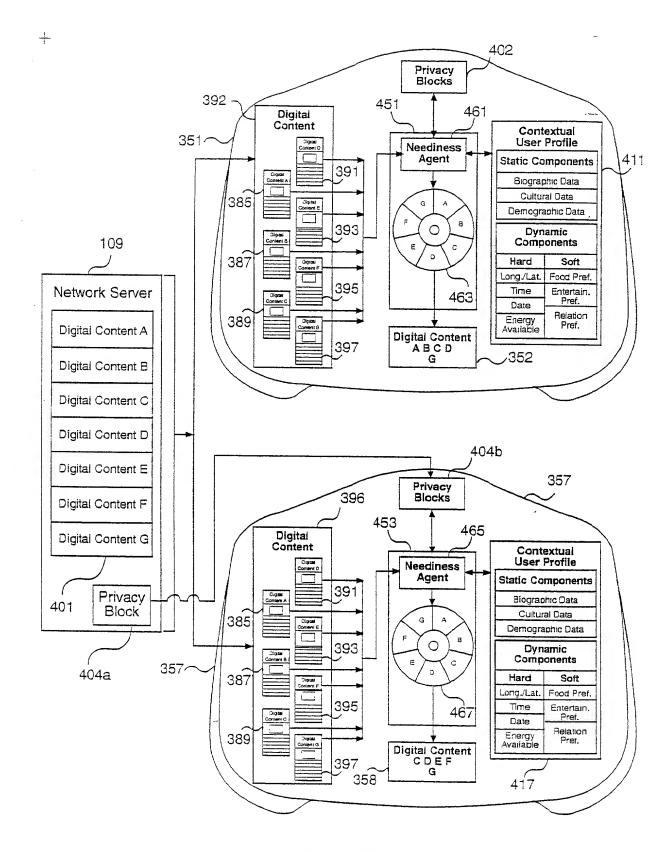


Figure 1M

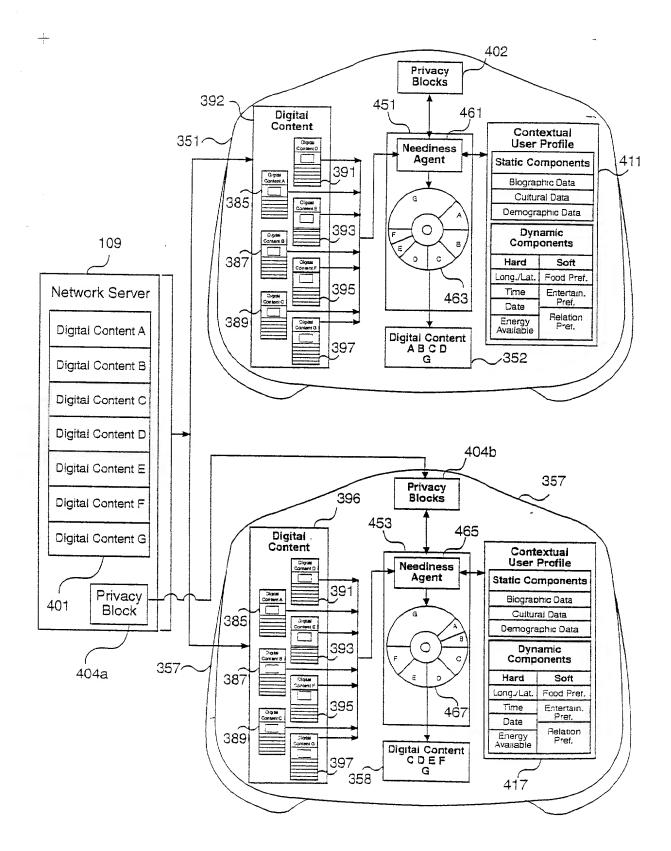
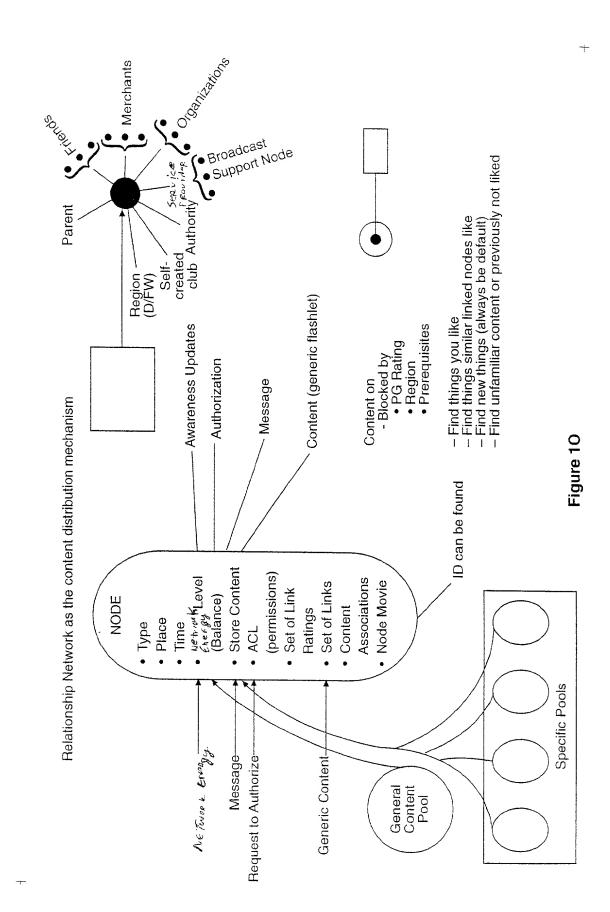


Figure 1N



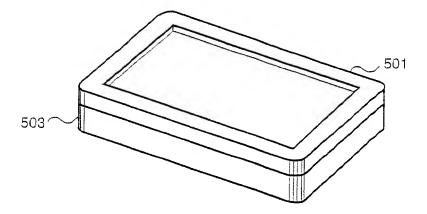


Figure 2A

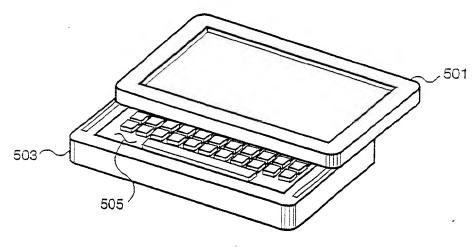


Figure 2B

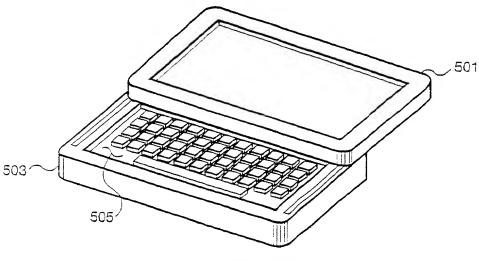
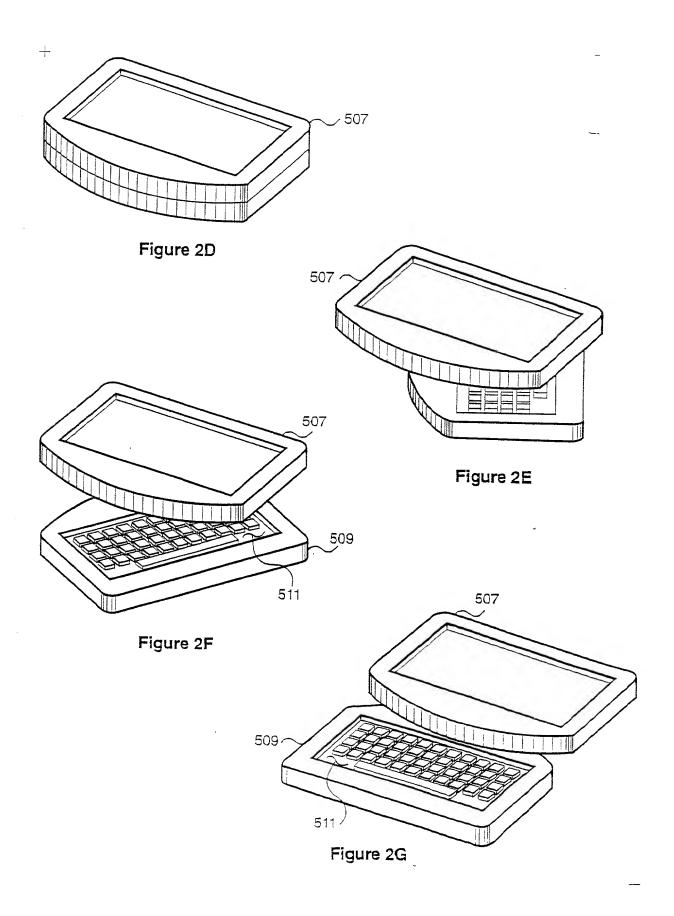


Figure 2C



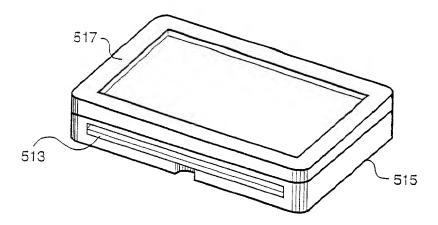


Figure 2H

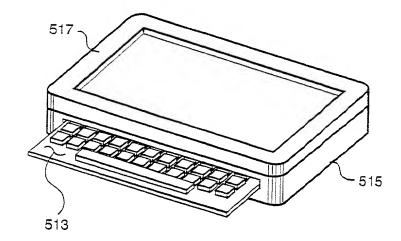


Figure 21

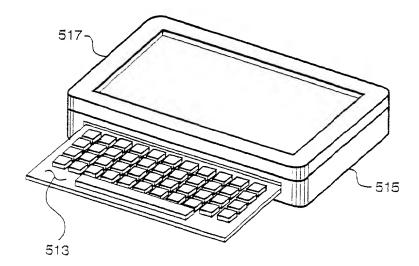
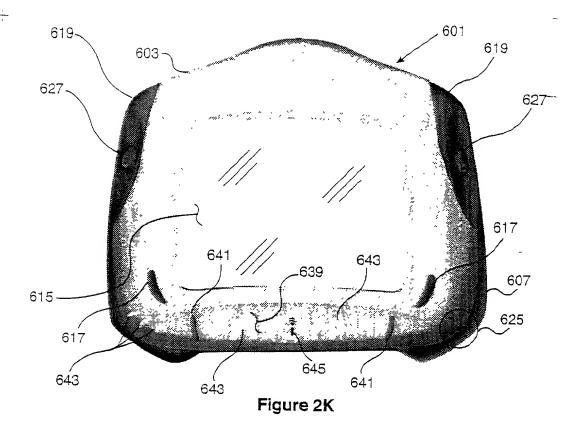
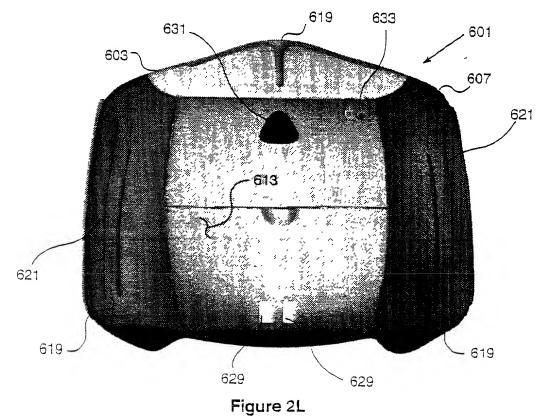
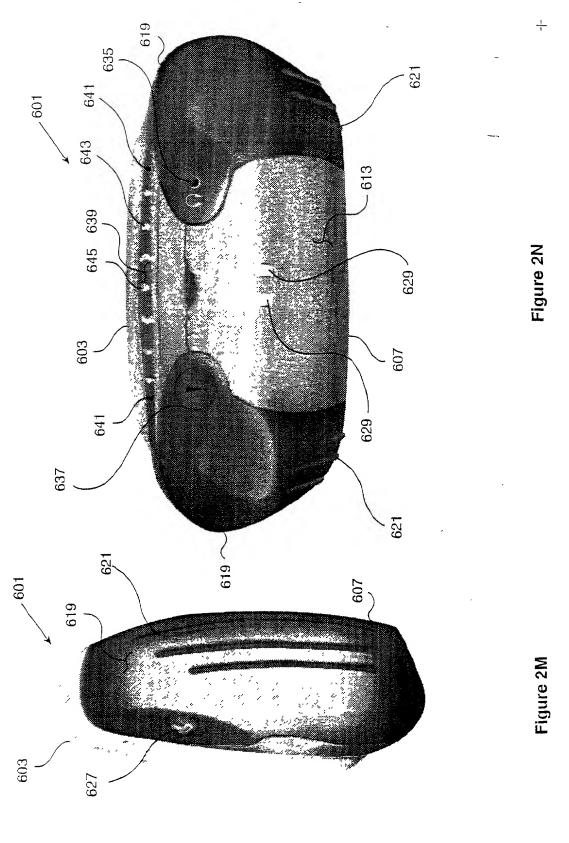


Figure 2J







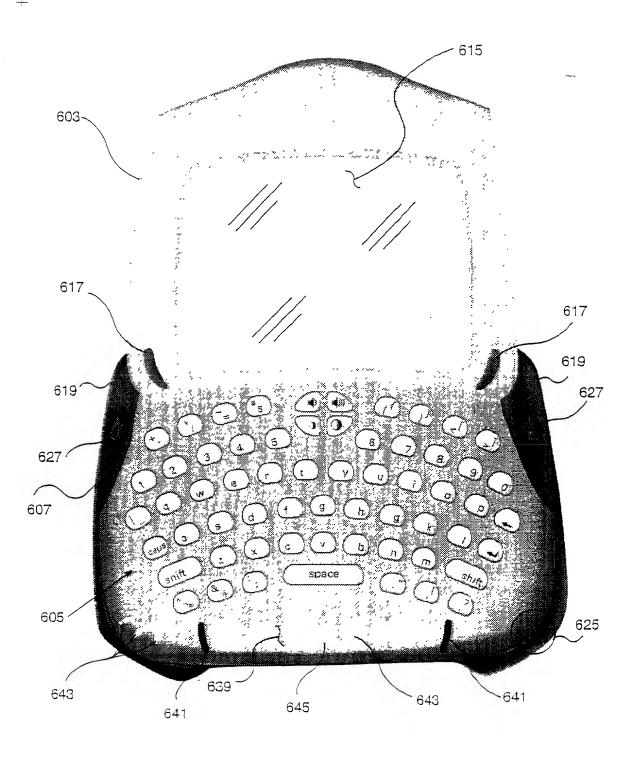


Figure 20

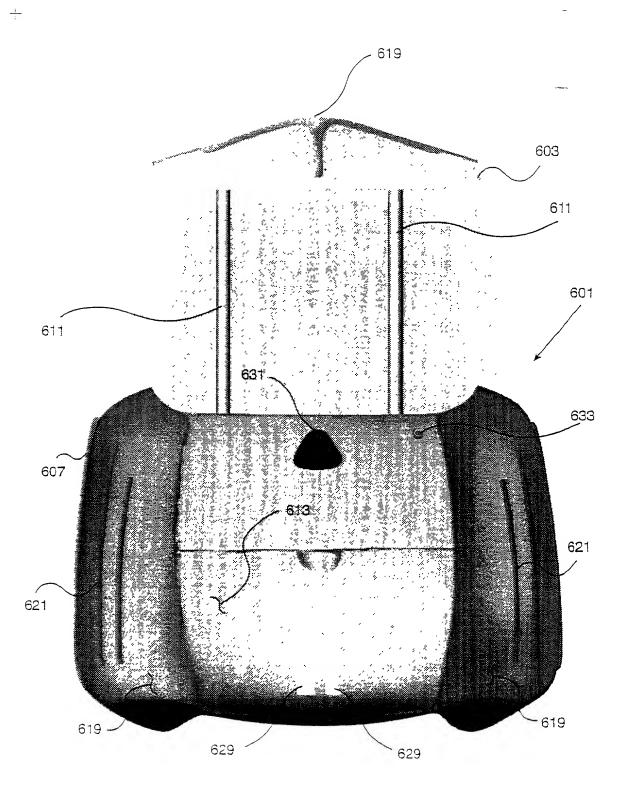
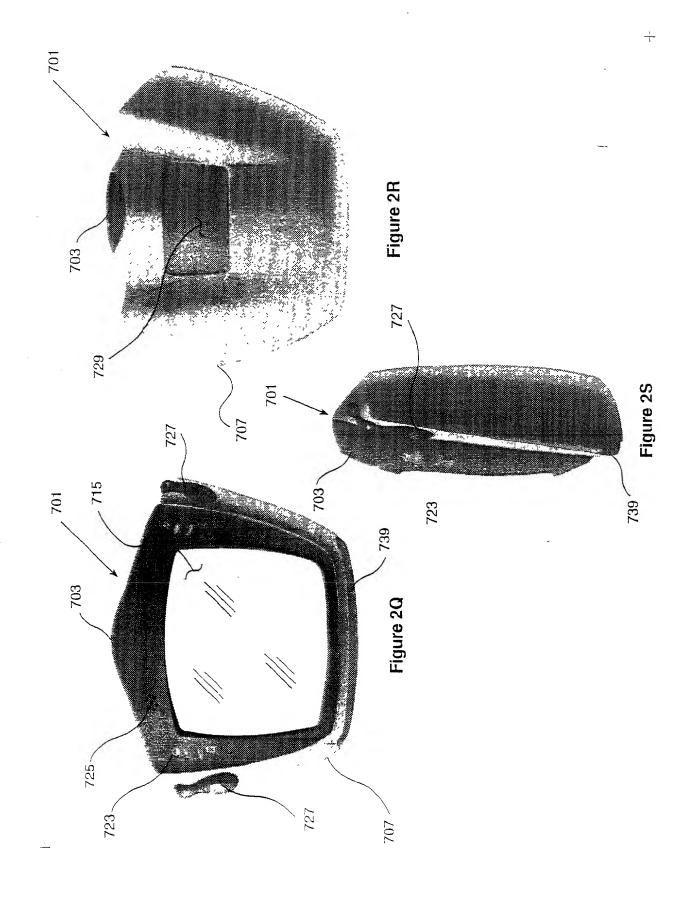


Figure 2P



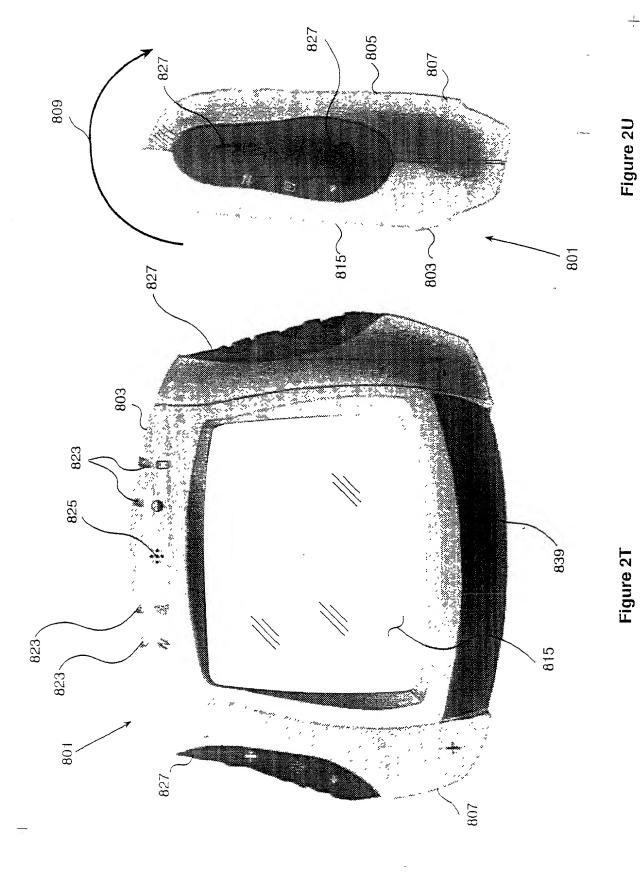


Figure 2T

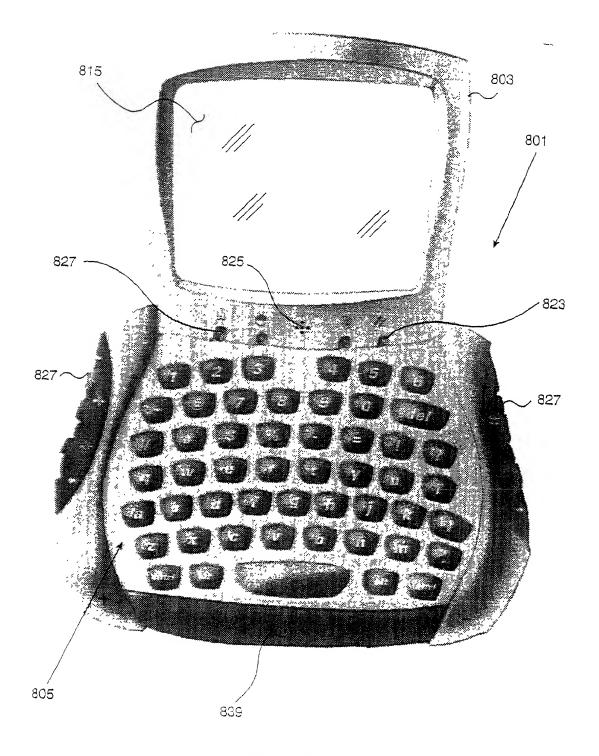
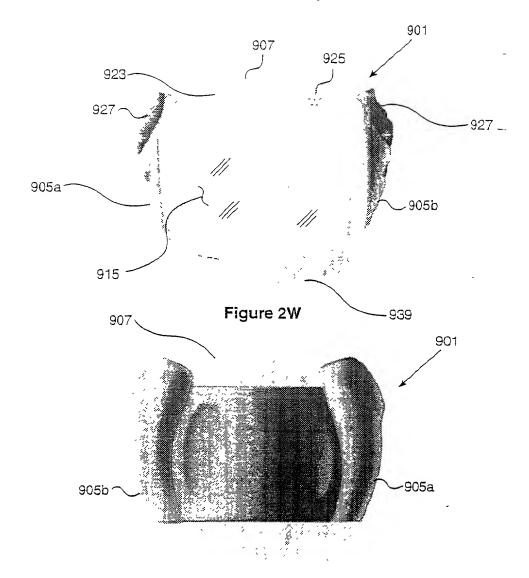


Figure 2V



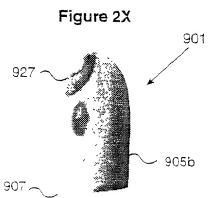


Figure 2Y

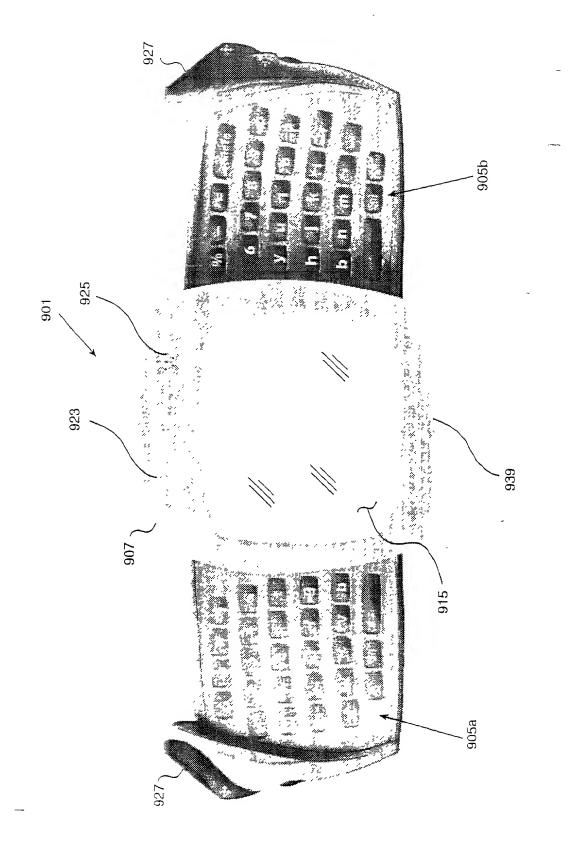
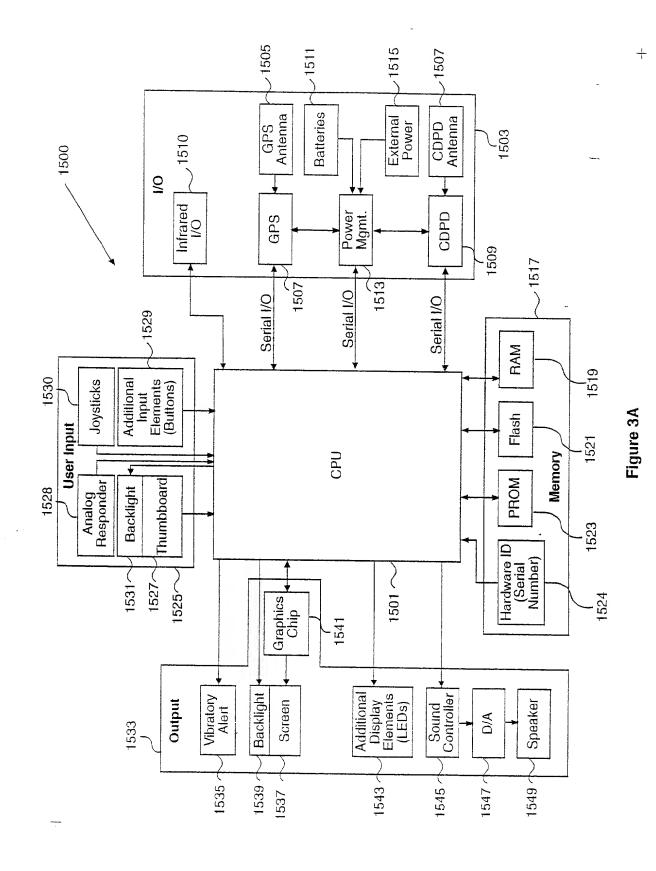


Figure 2Z

!



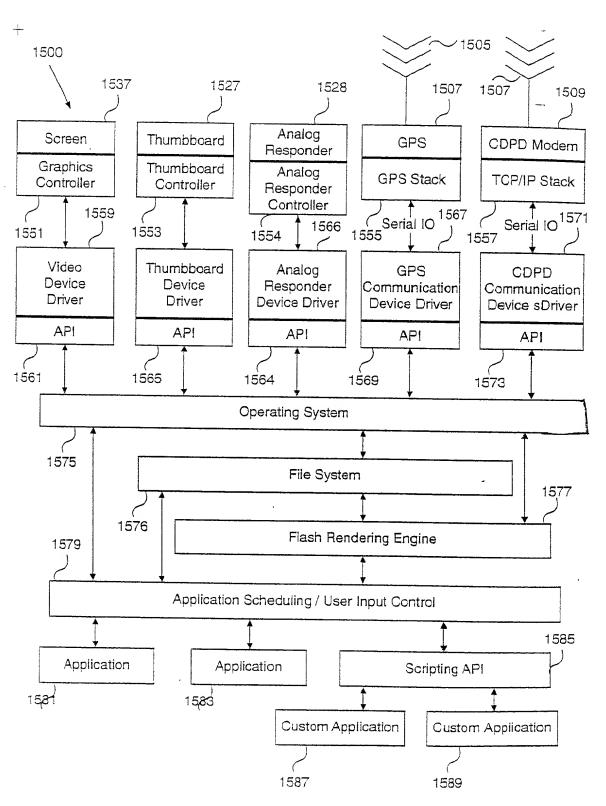
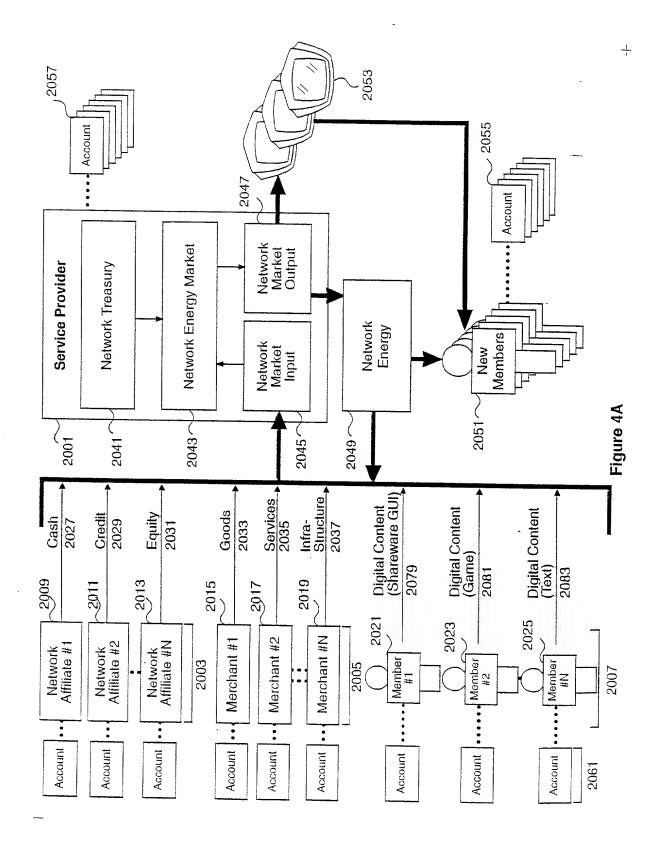


Figure 3B



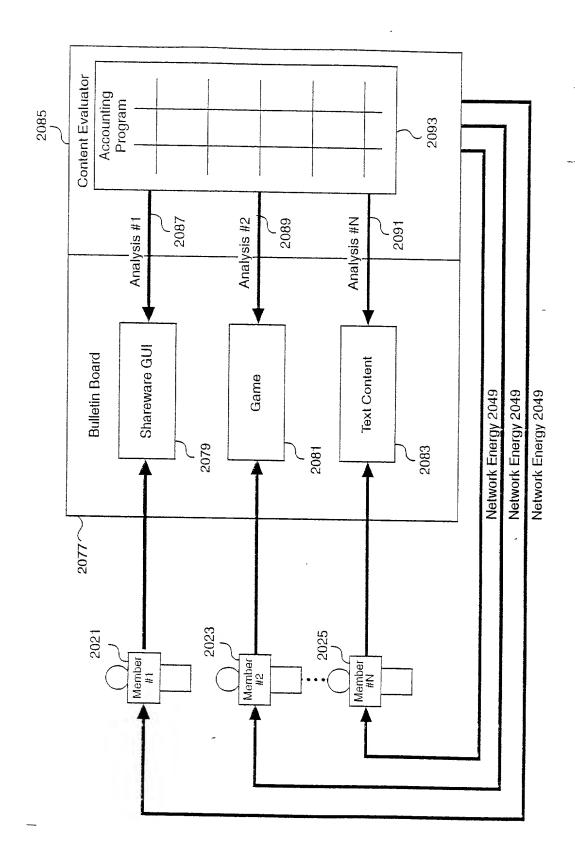
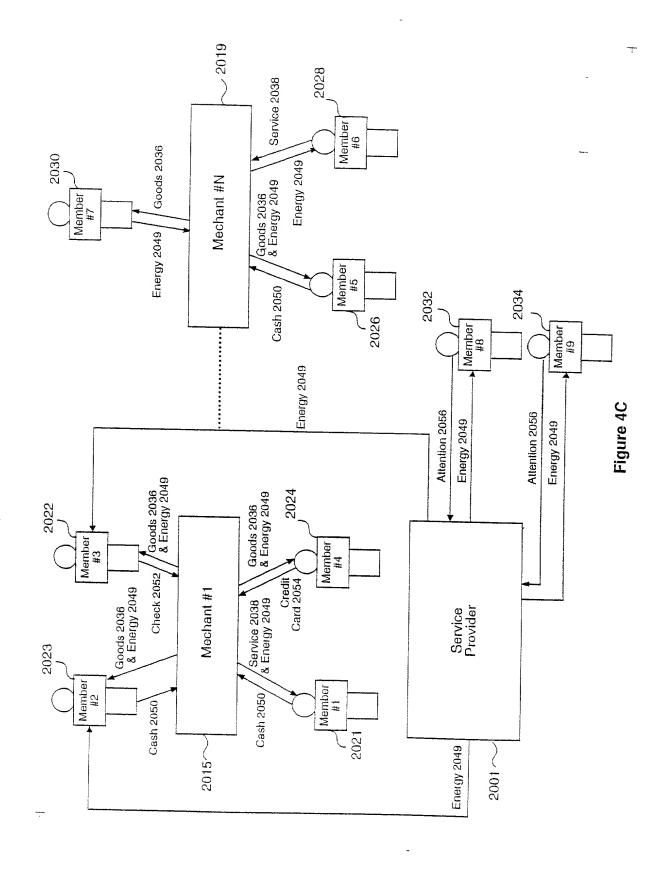


Figure 4B

+



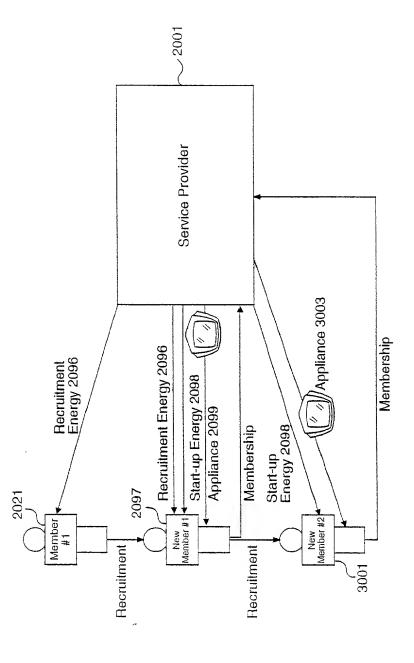


Figure 4D

3001	3003	3005	3007	3009	3011
	Type of Input Element	Non-Biasing	Starting Position	Needs On-Screen Indicator	Continuous
3013	One-Dimensional Touch Pad	Yes	No	No	Yes
3015	· Elongated Button	Yes	No	No	Yes
3017	Touch Screen with Graphical Slider	Yes	No	Yes	Yes
3019	Jog Wheel	o N	Yes	Yes	Yes
3021	Scroll Wheel	No	No	Yes	Yes
3023	Thumb Wheel	No	No	Yes	Yes
2005	Linear Sliding Knob	No	Yes	No	Yes
3020	Touch Screen with Graphical Radio Buttons	Yes	No	Yes	No
3031	Dedicated Buttons on Keyboard	Yes	No	No	No
	Two-Dimensional Touch Pad	Yes	Ν̈́o	No	Yes
				-	-

Figure 5A

1

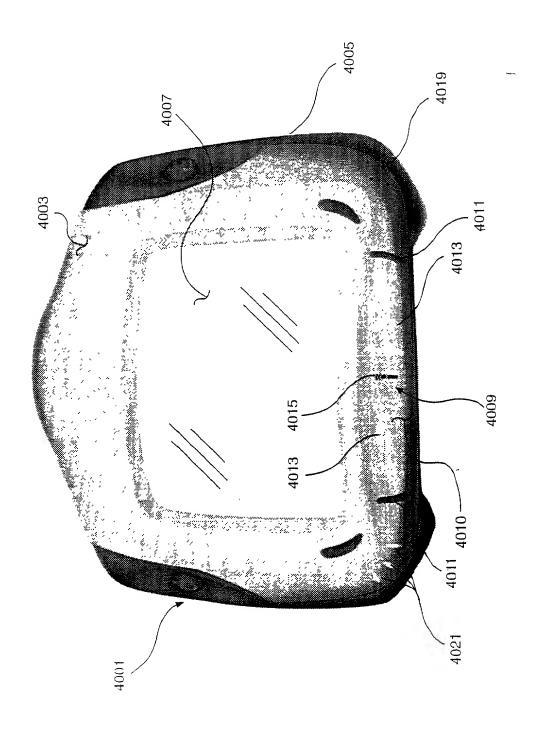


Figure 6A

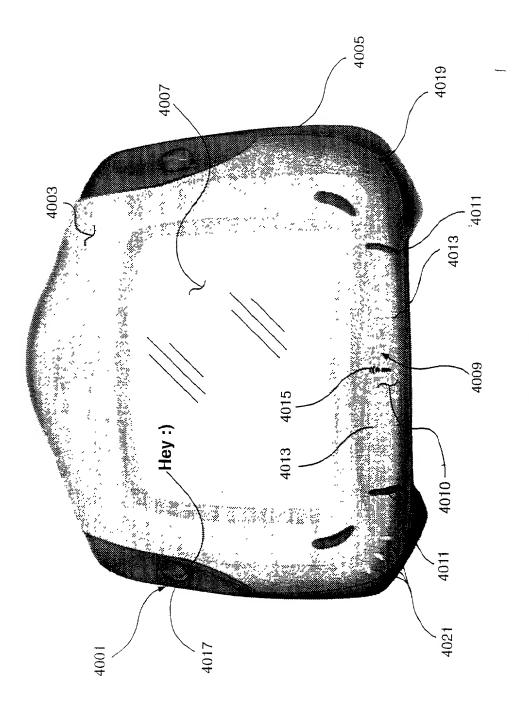


Figure 6B

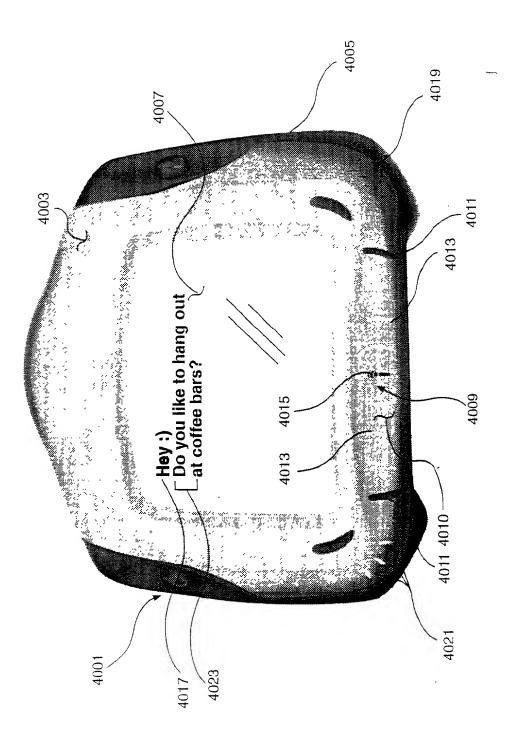
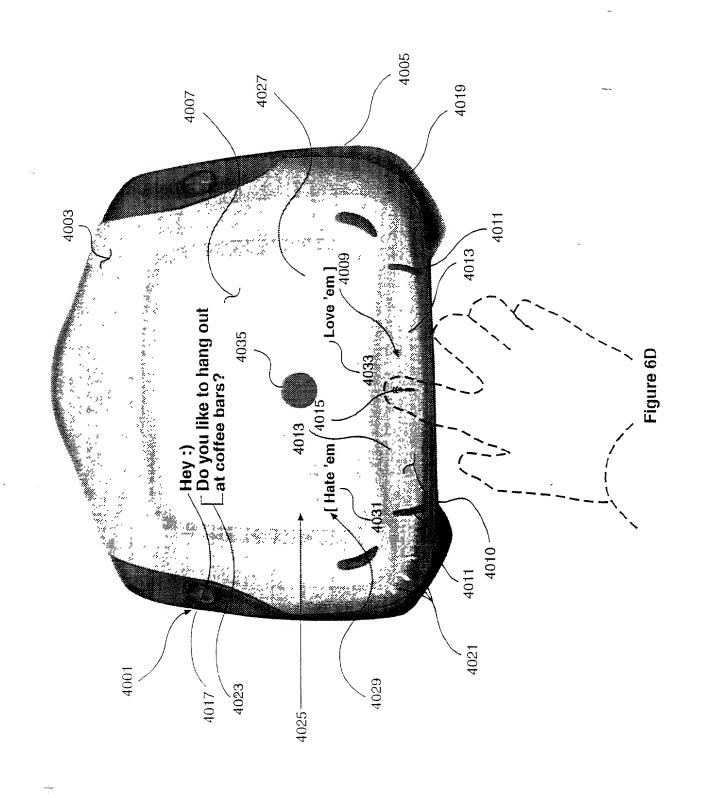
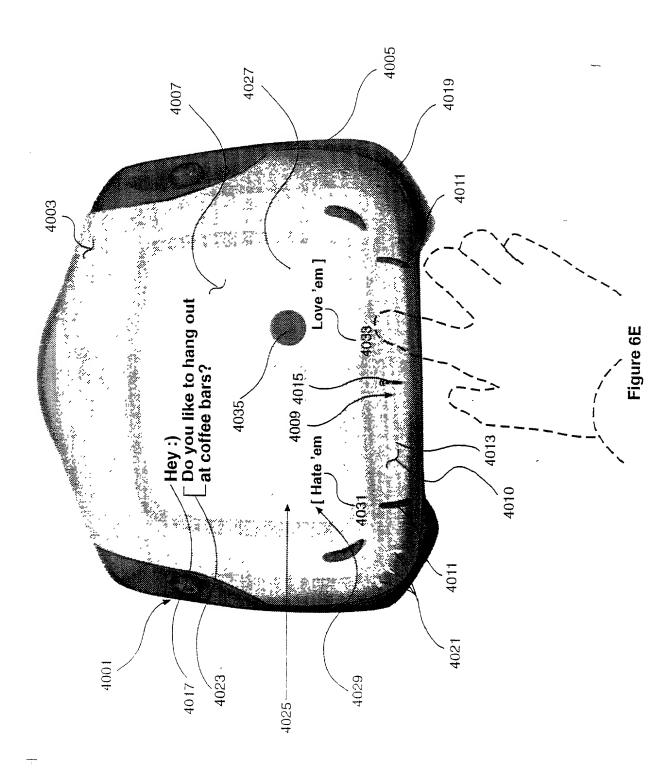


Figure 6C





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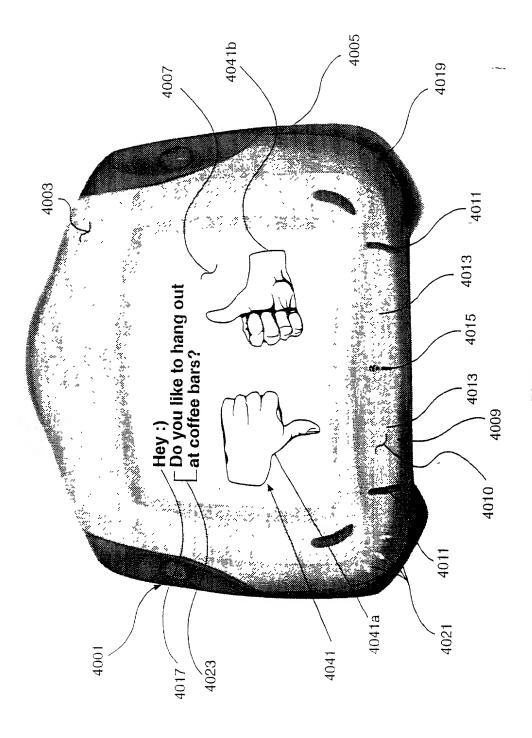


Figure 6F

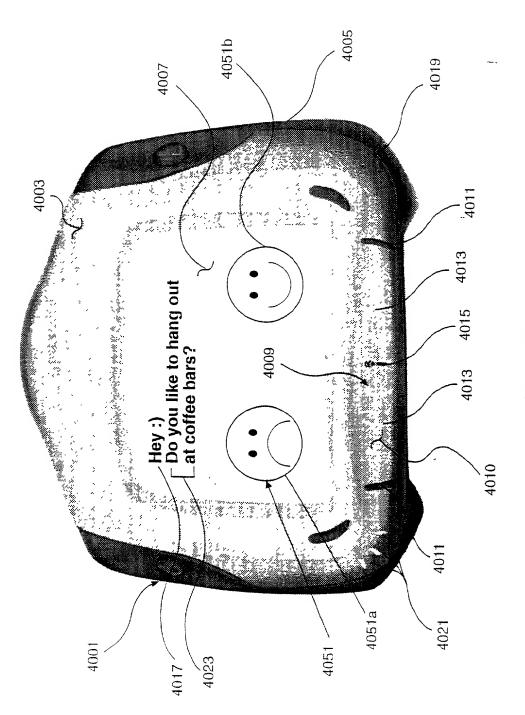
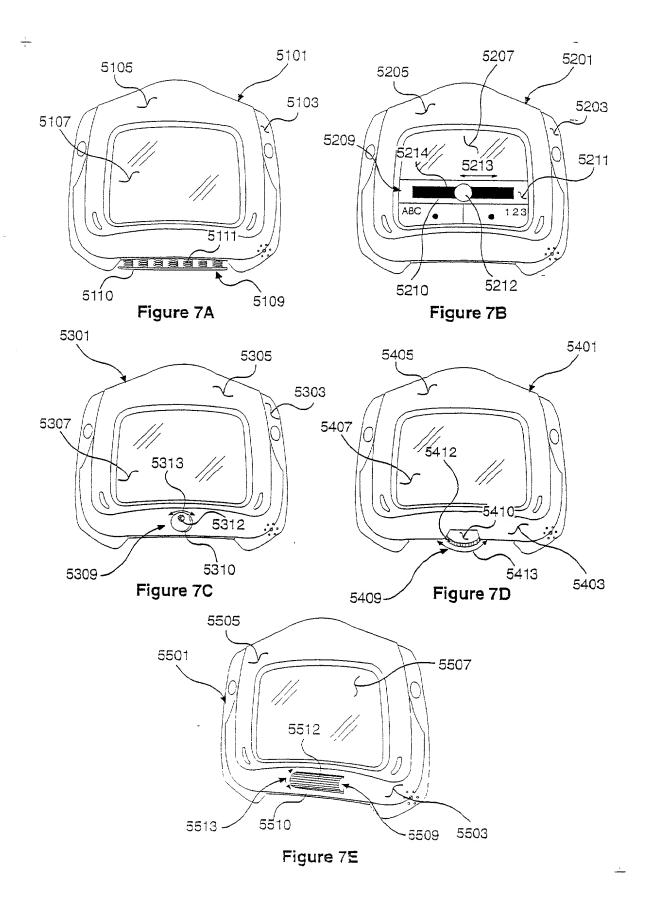
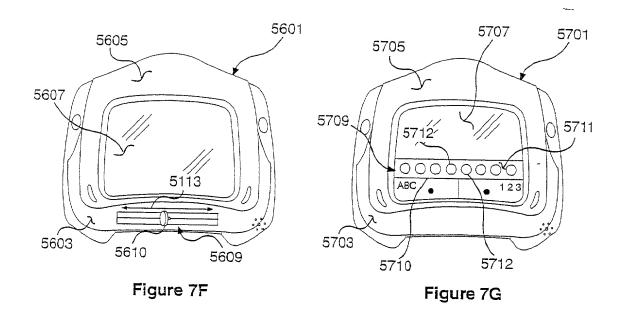
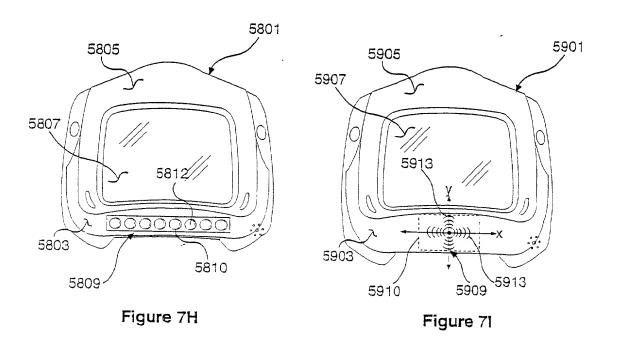


Figure 6G







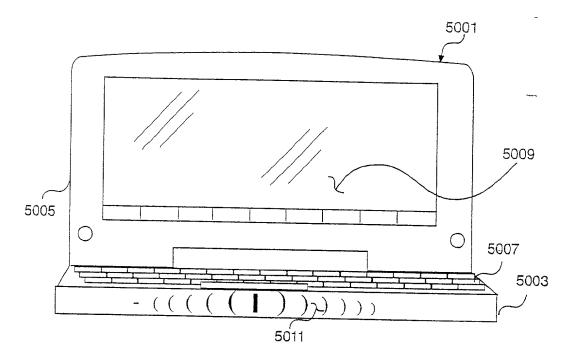


Figure 8A

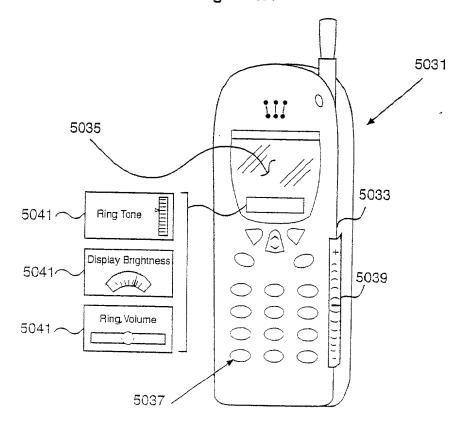


Figure 8B

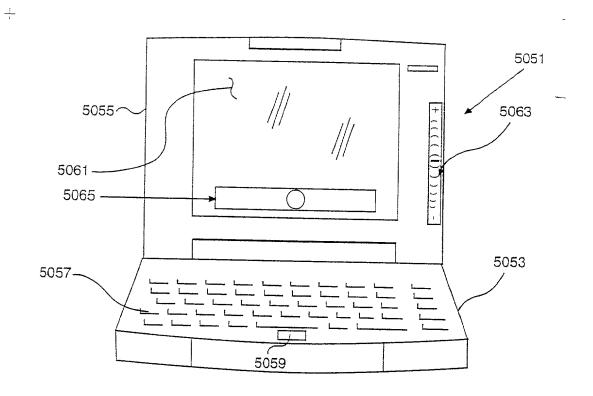


Figure 8C

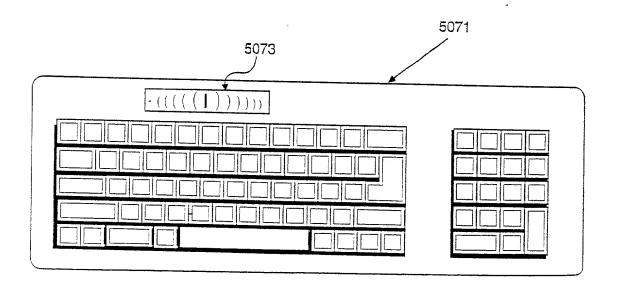


Figure 8D

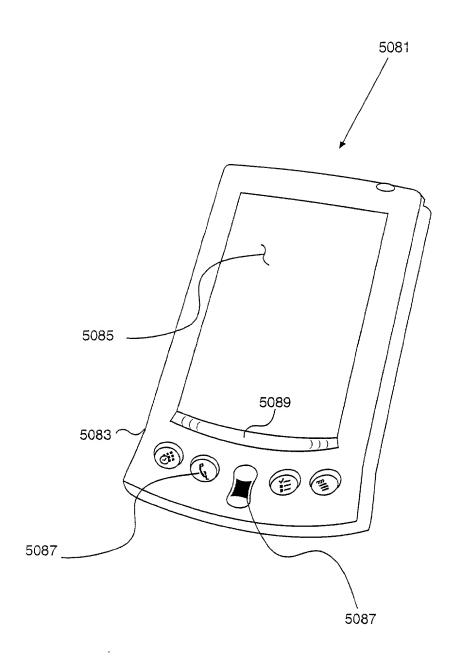


Figure 8E

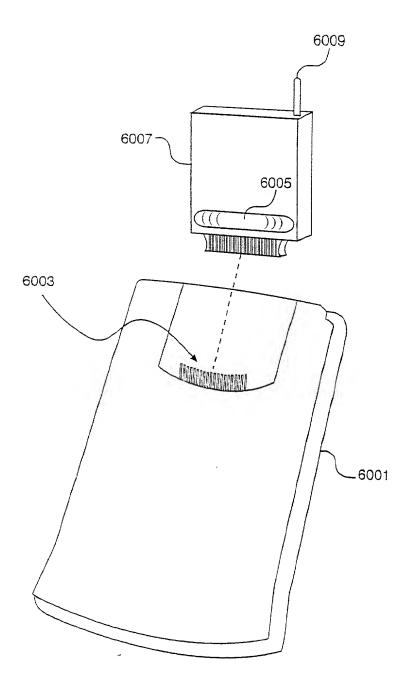


Figure 9

Age * Sex Crosstabulation

Fig 10A

Age	Male	Female	Total
12	154	133	287
13	154	161	315
14	155	116	271
15	131	133	264
16	100	98	198
17	104	117	221
18	80	60	140
19	10	9	19
Total	888	827	1715

Race * Sex Crosstabulation

Race		Male	Female	Total
White	N	783	714	1497
	%w/in race	52.30	47.70	100.00
Black	Ν	91	94	185
	%w/in race	49.19	50.81	100.00
Oriental	N	4	4	8
	%w/in race	50.00	50.00	100.00
American Indian	Ν	4		4
	%w/in race	100.00		100.00
Other	N	6	13	19
	%w/in race	31.58	68.42	100.00
Total	N	888	825	1713
	%w/in race	51.84	48.16	100.00

Fig 10B

Thumb Length

Fig.10e

	N	Mean	Std Dev	1st	5th	50th	95th	99th
Total Males	292	6.3	0.7	5.0	5.3	6.3	7.3	8.1
Total Females	285	6.0	0.5	4.8	5.1	5.9	6.8	7.1
Males 12-15	196	6.1	0.6	5.0	5.2	6.1	7.1	7.8
Males 16-19	96	6.7	0.6	5.5	5.9	6.7	7.5	
Females 12-15	198	5.9	0.5	4.7	5.0	5.9	6.8	7.0
Females 16-19	87	6.1	0.5	5.1	5.3	6.2	6.9	

Thumb Length: Males

5g 10D

					F	ercen	tiles	
Age	Z	Mean	Std Dev	1st	5th	50th	95th	99th
12	46	5.7	0.4	4.9	5.0	5.7	6.3	
13	46	6.0	0.5	5.1	5.2	5.9	6.9	
14	54	6.2	0.6	5.1	5.2	6.1	7.3	
15	50	6.6	0.4	5.5	5.9	6.6	7.3	•
16	31	6.6	0.4	5.7	5.9	6.6	7.1	
17	38	6.8	0.7	5.5	5.8	6.8	7.9	
18	25	6.8	0.4	6.2	6.2	6.9	7.5	
19	2	7.6	0.8	7.0	7.0	7.6		

Thumb Length: Females

Fig. 10E

					F	ercent	tiles	
Age	Valid N	Mean	Std Dev	1st	5th	50th	95th	99th
12	48	5.7	0.5	4.7	4.9	5.8	6.5	
13	61	5.9	0.5	4.6	4.9	5.8	6.6	
14	44	5.9	0.5	4.8	5.0	5.9	6.9	
15	45	6.1	0.4	5.4	5.4	6.0	6.9	
16	25	6.2	0.5	5.1	5.2	6.3	7.1	
17	42	6.0	0.5	5.1	5.2	6.0	7.0	
18	16	6.2	0.3	5.7	5.7	6.2		
19	4	6.1	0.3	5.7	5.7	6.1		

Fig 10F

Correlations: Total

		THUMB LENGTH	HAND LENGTH
THUMB LENGTH	Pearson Correlation	1	0.770
	Sig. (2-tailed)**		0.000
	N	577	576
HAND LENGTH	Pearson Correlation	0.770	1
	Sig. (2-tailed)**	0.000	
	N	576	1707

Fig. 104

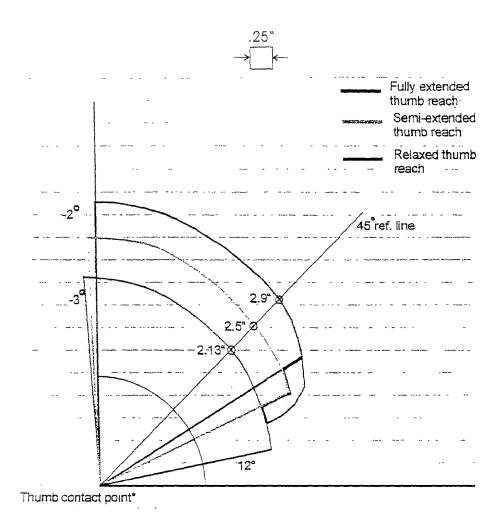
Correlations: Male

		THUMB LENGTH	HAND LENGTH
THUMB LENGTH	Pearson Correlation	1	0.790
	Sig. (2-tailed)**		0.000
-	N	292	291
HAND LENGTH	Pearson Correlation	0.790	1
	Sig. (2-tailed)**	0.000	
	N	291	882
**	Correlation is significa	nt at the 0.01 level (2-taile	ed)**.

Correlations: Female

		THUMB LENGTH	HAND LENGTH
THUMB LENGTH	Pearson Correlation	1	0.657
	Sig. (2-tailed)**		0.000
	N	285	285
HAND LENGTH	Pearson Correlation	0.657	1
	Sig. (2-tailed)**	0.000	
	N	285	825
**	Correlation is significant a	at the 0.01 level (2-tailed)	**,

Fig 10H

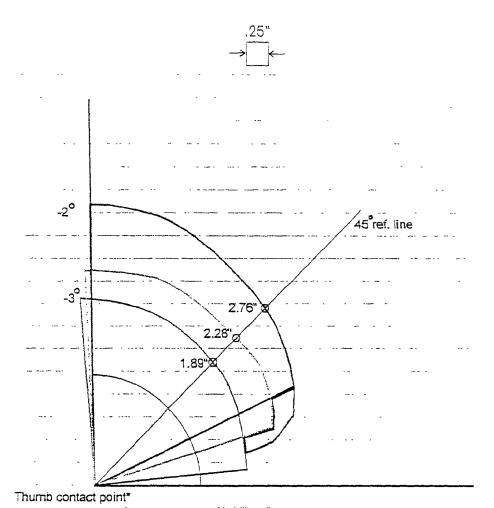


1st Percentile Left Thumb Sweeps, Females Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Note: each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with comer, at midpoint of lower comer radius on device

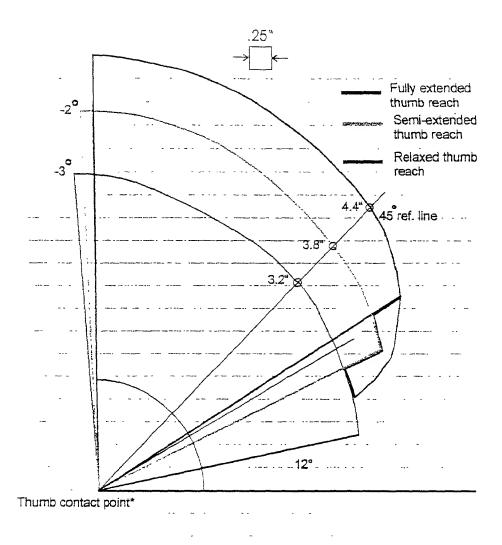
Fig 10I



1st Percentile Left Thumb Sweeps, Females Age 12-19 (Uniform object thickness 0.75", corner radius 0.75")

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

Fig 10 T

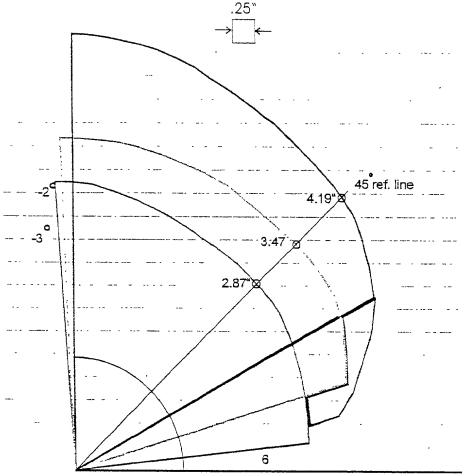


95th Percentile Left Thumb Sweeps, Male Age 12-19 (Uniform object thickness 0.75", **corner radius 1.5"**)

Note: each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with comer, at midpoint of lower comer radius on device

Fig 10K

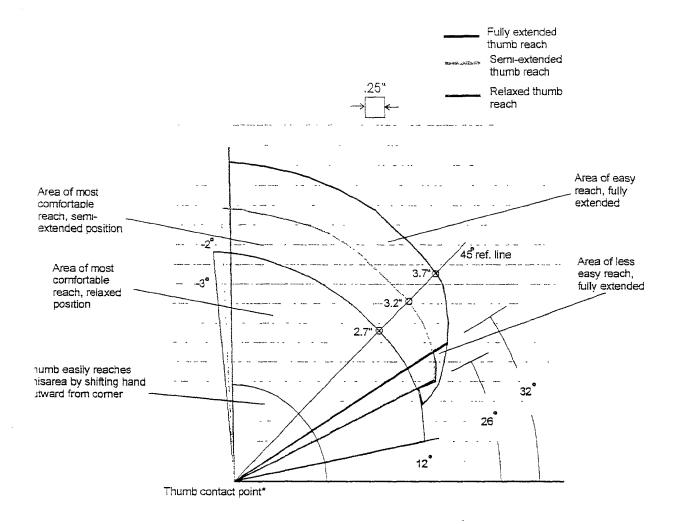


Thumb contact point*

95th Percentile Left Thumb Sweeps, Male Age 12-19 (Uniform object thickness 0.75", corner radius 0.75")

* Located vertically over point of thumb base contact with comer, at midpoint of lower comer radius on device

Fig 10L

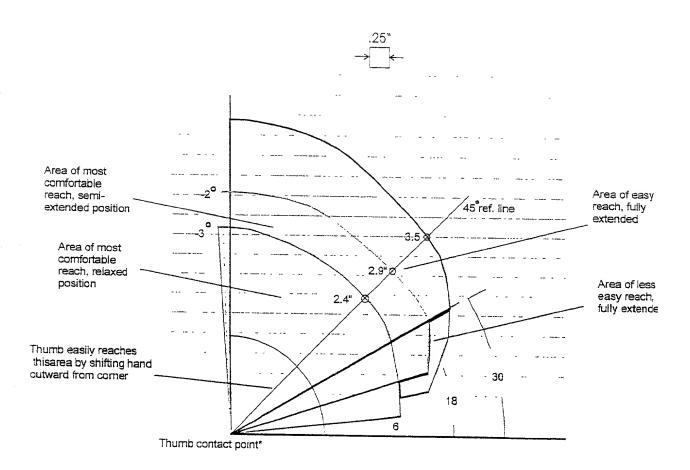


50th Percentile Left Thumb Sweeps, M+F Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Note: Each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

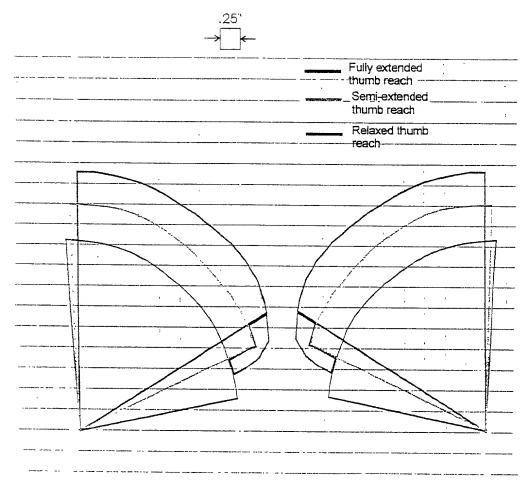
Fig 10M



50th Percentile Left Thumb Sweeps, M+F Age 12-19 (Uniform object thickness 0.75", corner radius 0.75")

Fig 10N

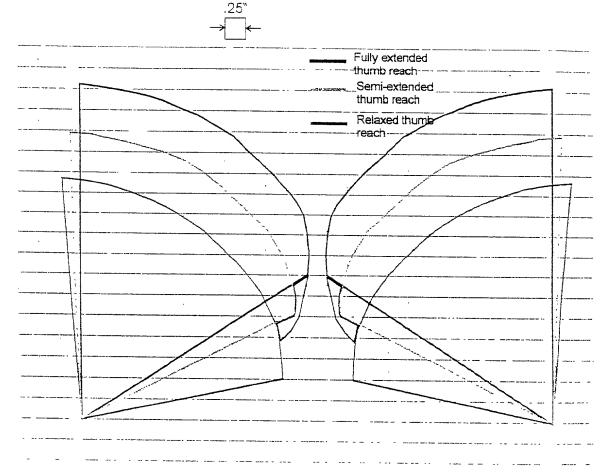
^{*} Located vertically over point of thumb base contact with comer, at midpoint of lower comer radius on device



1st Percentile Combined Thumb Sweeps, Females Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")
Note: each data point represents thumb tip at centerline of thumb

5g 100

^{*} Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

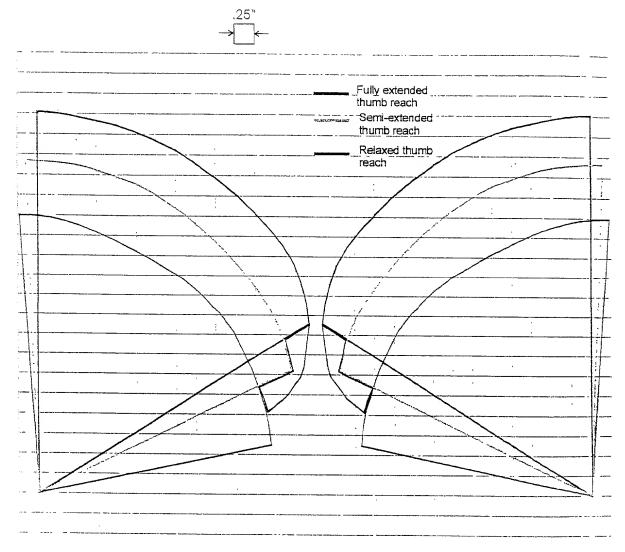


50th Percentile Combined Thumb Sweeps, Male+Females Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

Fig 10 P

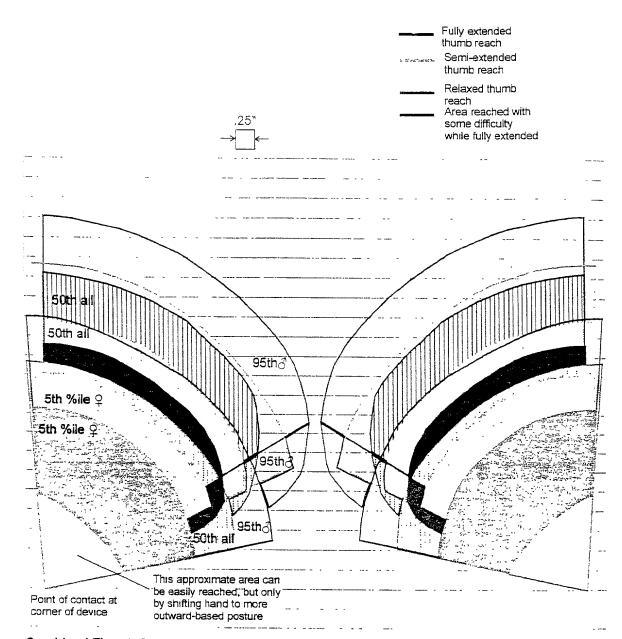


95th Percentile Combined Thumb Sweeps, Males Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

Fig 100



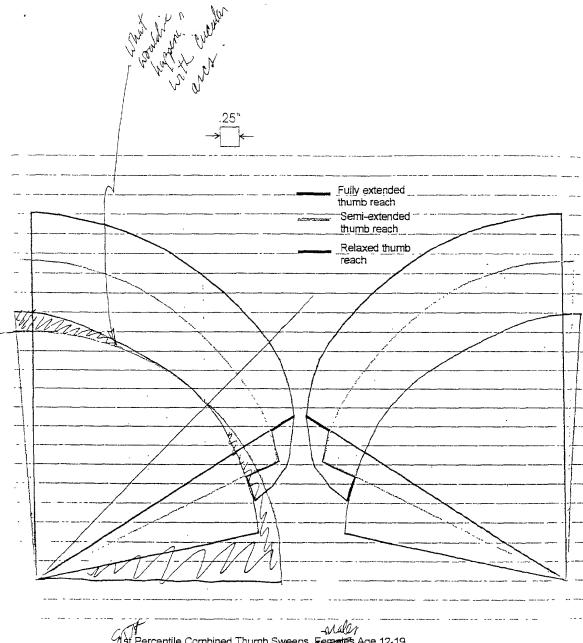
Combined Thumb Sweeps, 1st Percentile Females Through 95th Percentile Males Age 12-19

(Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

 $\verb|Located|$ vertically over point of thumb base contact with corner, at midpoint of lower comer radius on device

Fig 10R

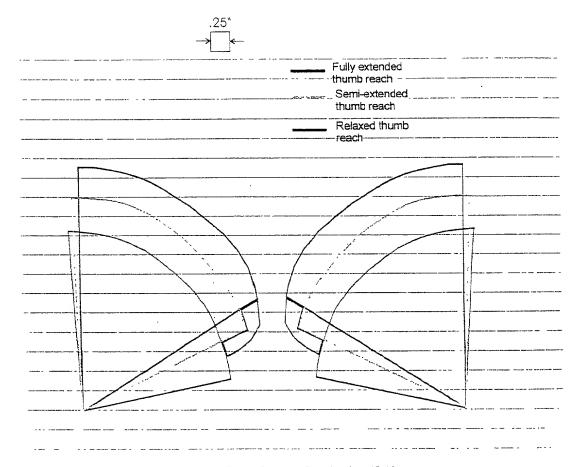


13t Percentile Combined Thumb Sweeps, Females Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Note: each data point represents thumb tip at centerline of thumb

Fig 105

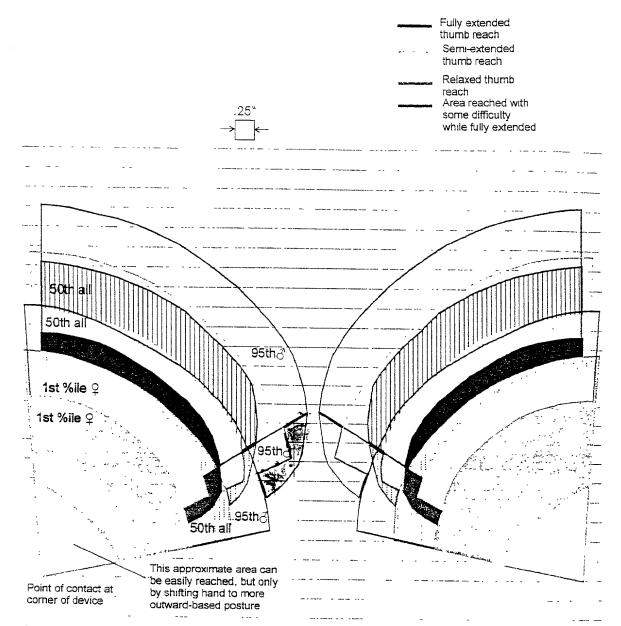
^{*} Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device



1st Percentile Combined Thumb Sweeps, Females Age 12-19 (Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

Fig 10T



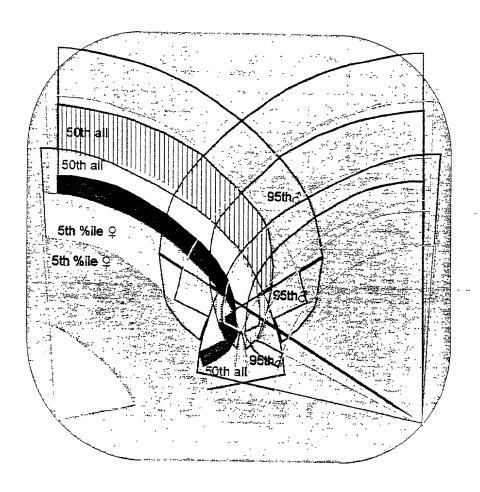
Combined Thumb Sweeps, 1st Percentile Females Through 95th Percentile Males Age 12-19

(Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

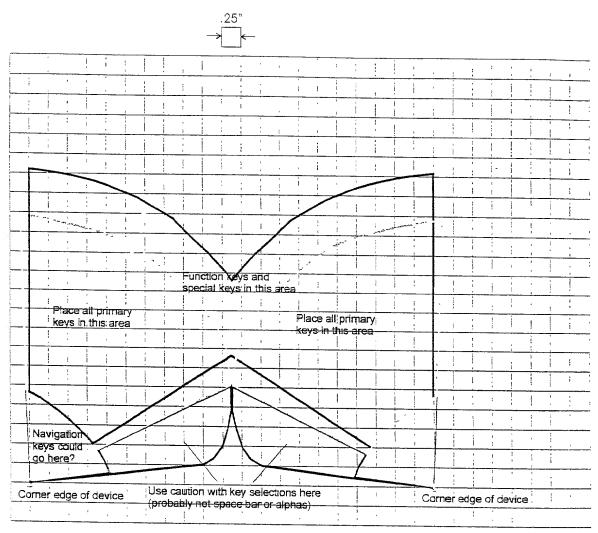
Fig 10U

Located vertically over point of thumb base contact with comer, at midpoint of lower comer radius on device



Thumb sweeps on 1.5 corner template, 5.5" (50th percentile relaxed reaches overlap 0.15 in.)

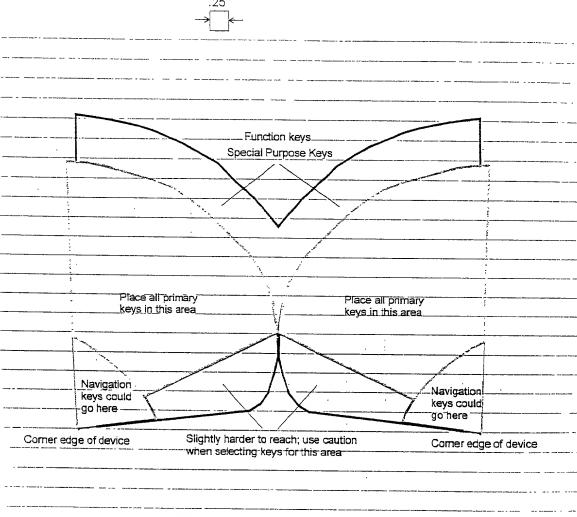
Fig 10V



Key Placement Guidelines

(Uniform object thickness 0.75", **corner radius 1.5"**)
Using 50th percentile semi-extended reach for primary keying area

Fig 10W



Key Placement Guidelines

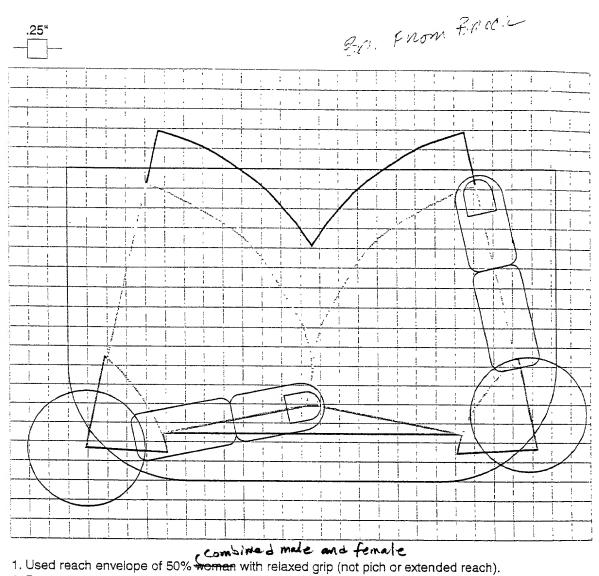
Device thickness 0.75"(uniform), corner radius 1.5" (plan view), corner radius approx. 1.0" (side view)

Notes:

For device thickness of 0.75 in., keying area width is approx. 5.5 in. Reach areas are valid for placement of thumbs at corner or along sides Smaller corner radii decrease reach areas but permit easier reach into blue areas Device thicknesses greater than 0.75 in. quickly decrease size of reach areas Reach plots generally indicate a device width of approx. 6.0 in.

Fig 10X

C38



- 2. Drew geometry to represent the approx dims of 50% woman. Circle represents the palm at the base and crotch of the thumb.
- 3. Rotated the reach envelope approx 15° to more closely resemble the hand posture of holding a game controller.

Fry 10Y

Automated Wrapping Process

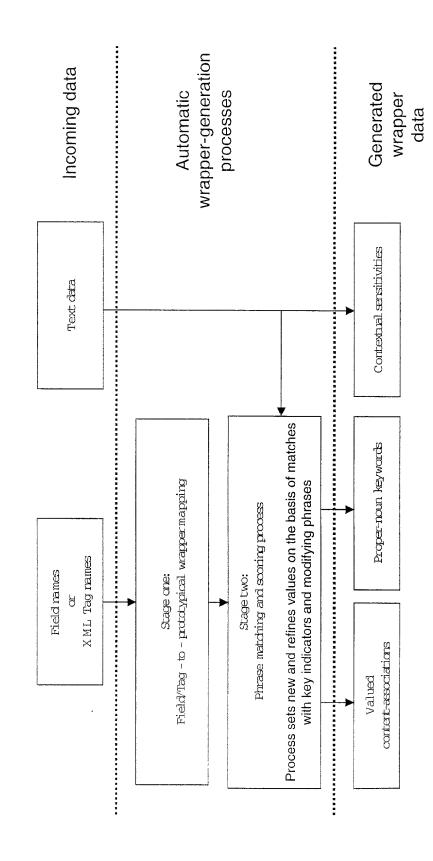
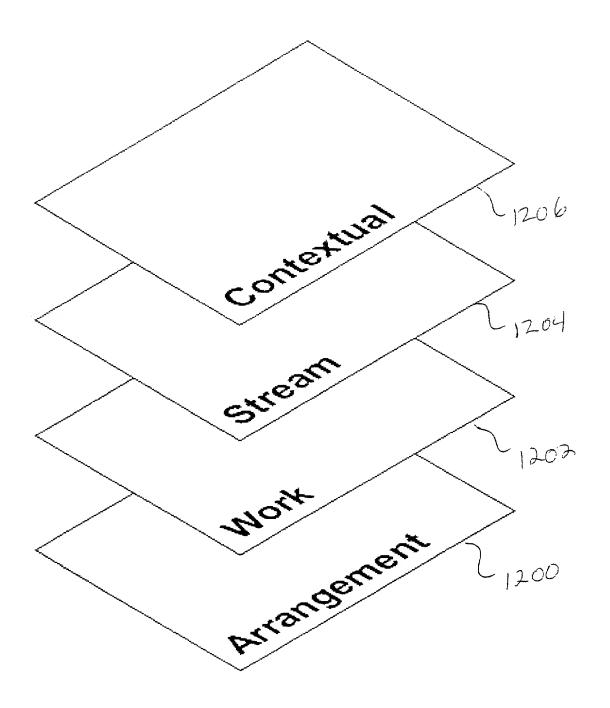


Figure 11



.79.12

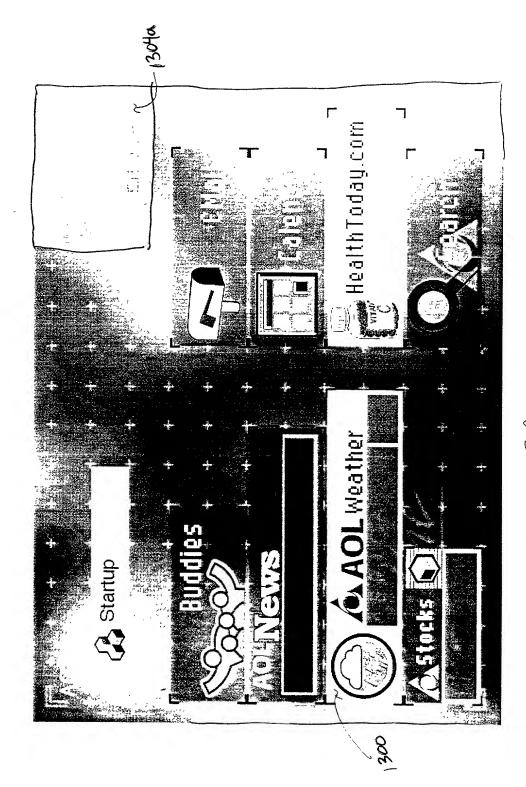


Fig. 13A

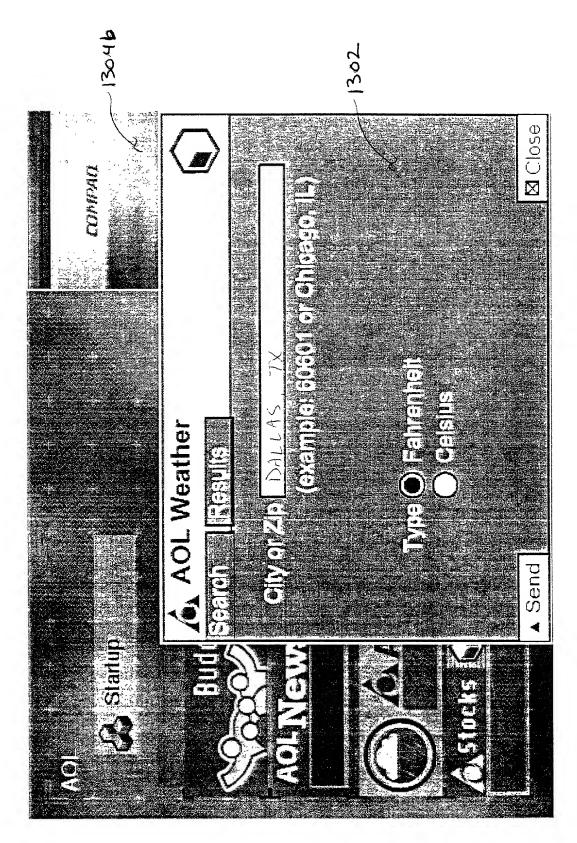


Fig 13B

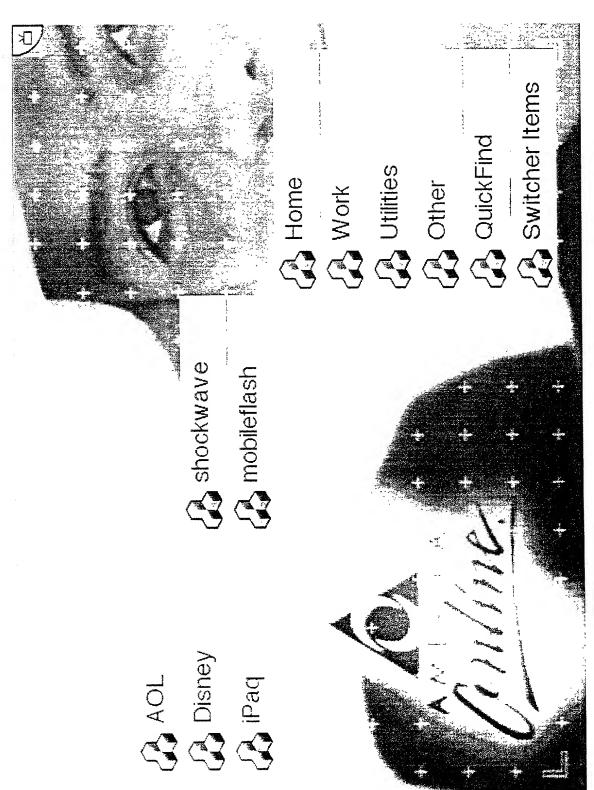
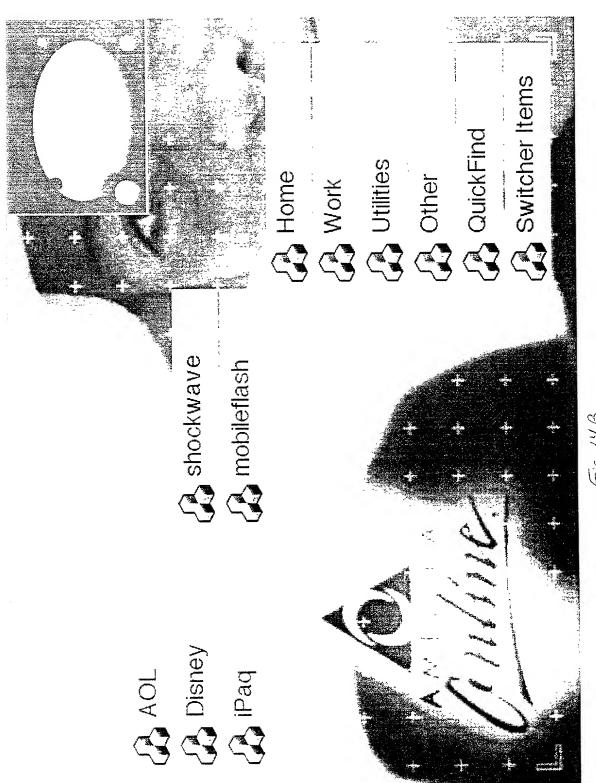


Fig 14A



F19 14B

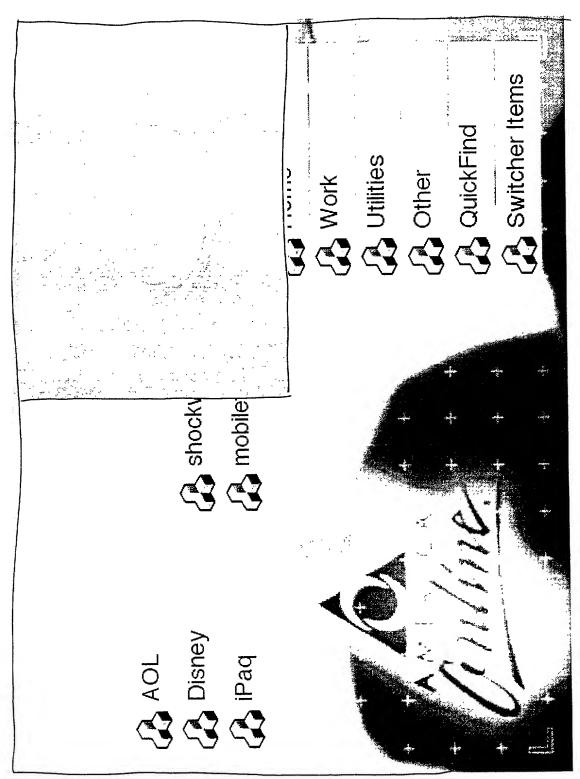


Fig 14C

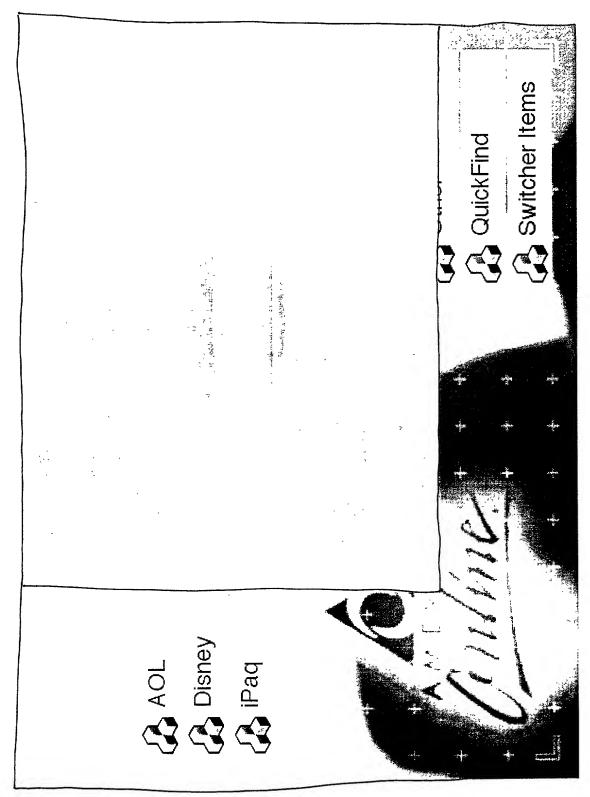
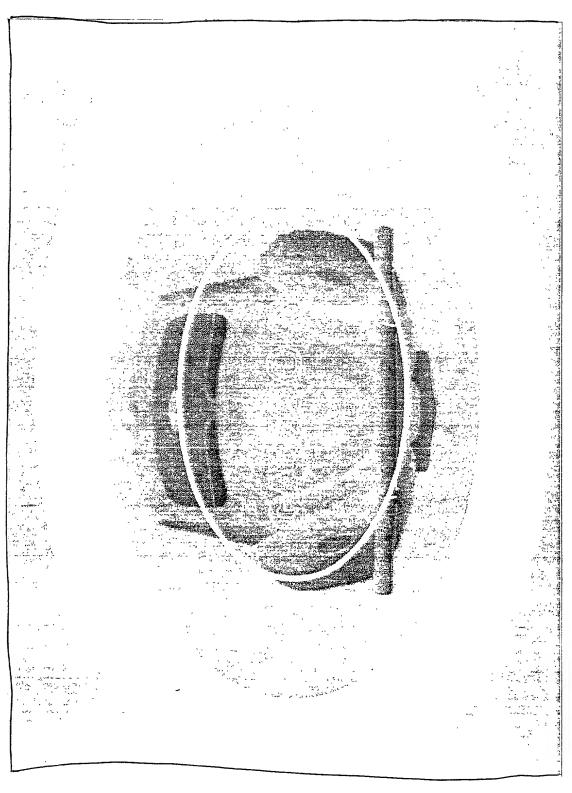
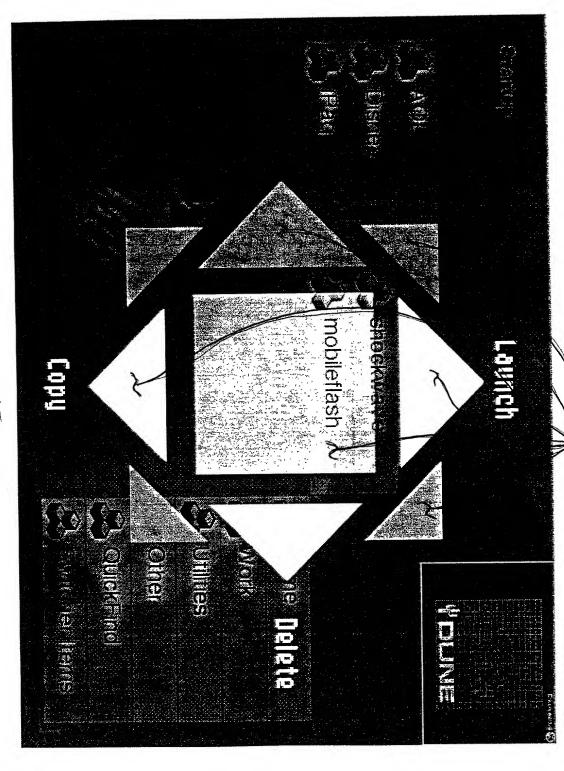


Fig 14D



F19 14E



1850

Fig. 15

F,9 16

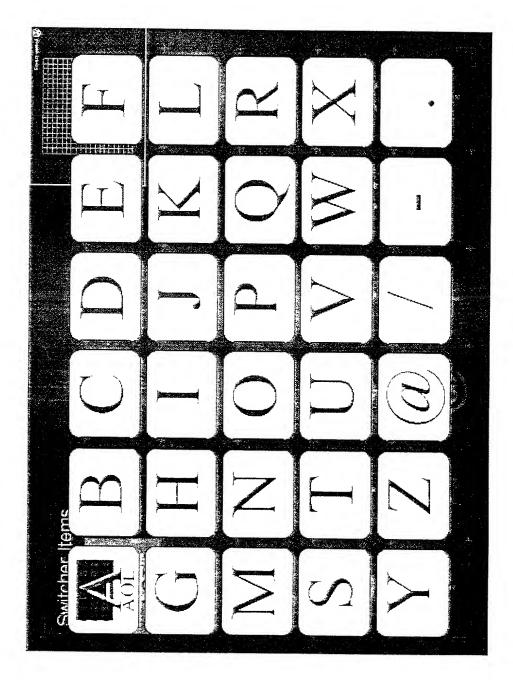


Fig. 17A

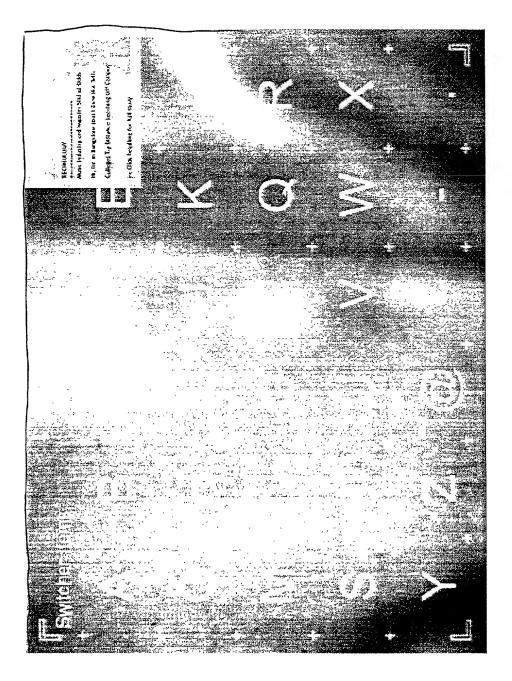


Fig 178

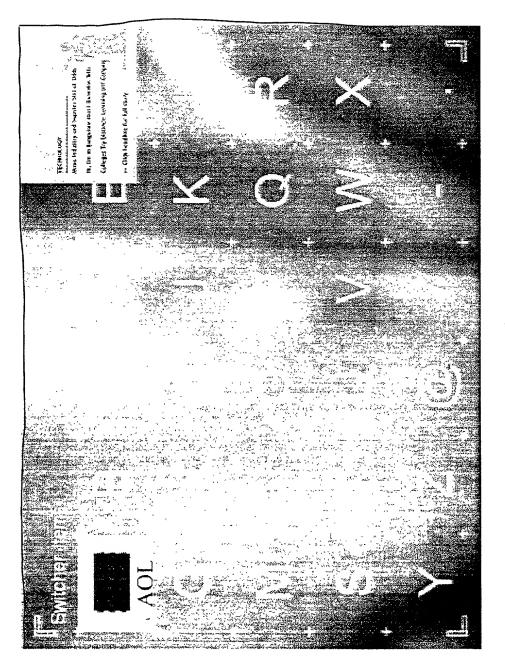
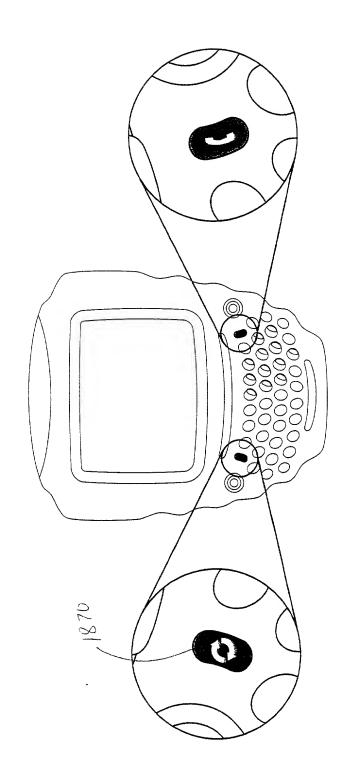


Fig 170



G17D

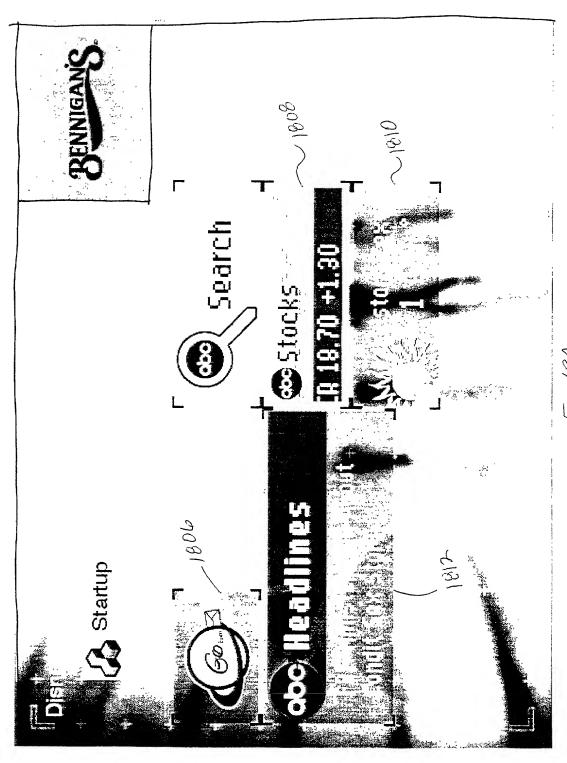
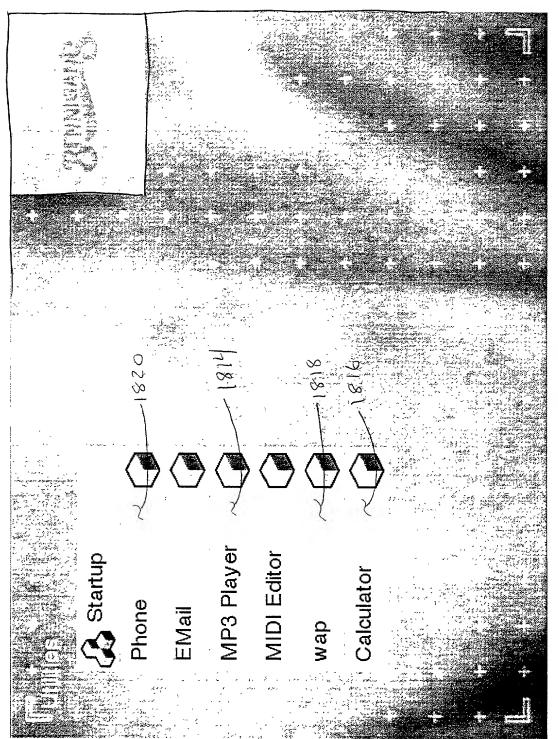


Fig. 181



F19 18 R

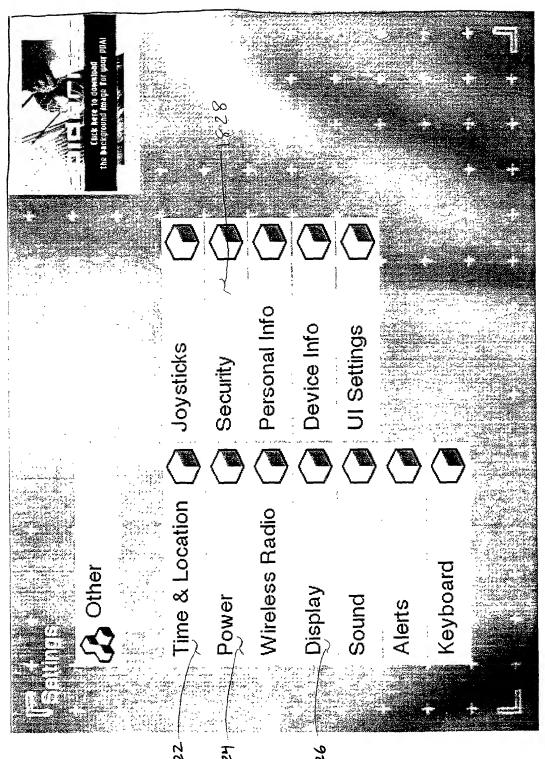
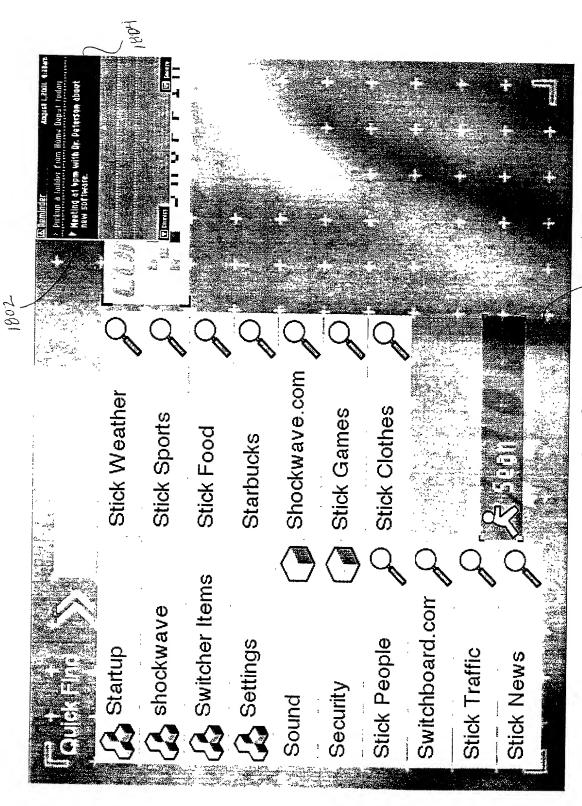


Fig 18C



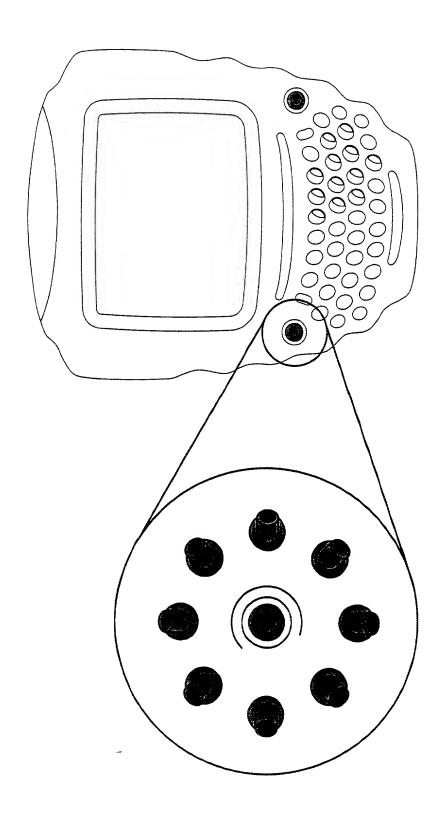


Fig 19